

## Final

# **Benthic Invertebrate Evaluation SWMU 3 - Pier 10 Sandblast Yard**

Joint Expeditionary Base Little Creek Virginia Beach, Virginia



**Prepared for** 

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## Benthic Invertebrate Evaluation, SWMU 3 – Pier 10 Sandblast Yard, Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

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## 1.0 Introduction

This technical memorandum (TM) summarizes the field activities, analytical results, and data evaluation of the benthic invertebrate investigation at Solid Waste Management Unit (SWMU) 3, the Pier 10 Sandblast Yard, at Joint Expeditionary Base (JEB) Little Creek, Virginia Beach, Virginia. The investigation activities were performed to evaluate the condition of the existing benthic invertebrate community to help define the remediation area, evaluate remedial alternative effectiveness, and measure the achievement of remedial action objectives (RAOs). This TM was prepared for the Department of the Navy (Navy), Naval Facilities Engineering Command (NAVFAC) Mid-Atlantic, under the Comprehensive Long-term Environmental Action – Navy (CLEAN) Contract N62470-08-D-1000, Contract Task Order WE07, in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986, and, to the extent practicable, the National Oil and Hazardous Substances Contingency Plan.

Sections 2 through 4 of this TM provide site background information and a summary of site evaluation history. Section 5 provides a summary of the benthic invertebrate evaluation. Section 6 presents the conclusions and recommendations, and Section 7 includes the references. Attachments A, B, and C, respectively, provide the analytical data, data validation reports, and the benthic report. The complete ecological risk evaluation is contained in Attachment D.

## 2.0 Facility Background

On October 1, 2009, Hampton Roads' first Department of Defense Joint Base was established. This new installation comprises the former Naval Amphibious Base Little Creek and the Army post of Fort Story; its new name is JEB Little Creek-Fort Story. With the forming of this new command, the Navy assumes responsibility for management of both properties and will now merge meetings regarding its ongoing Environmental Restoration Programs (ERPs). However, separate records will be maintained to ensure the integrity of ongoing efforts at both properties. When required for public notices and distributions, the former bases will be identified as JEB Little Creek-Fort Story. For ERP documents, the bases will be referred to separately as JEB Little Creek and JEB Fort Story.

JEB Little Creek is primarily an industrial and training facility located in the northwest corner of Virginia Beach, Virginia (**Figure 1**). It provides logistic facilities and support services for local commands, organizations, homeported ships, and other United States (U.S.) and allied units to meet the amphibious warfare training requirements of the U.S. Armed Forces.

The 2,215-acre base is low-lying and relatively flat, with several freshwater lakes (Chubb Lake, Lake Bradford, Little Creek Reservoir/Lake Smith, and Lake Whitehurst) on or adjacent to the Base. JEB Little Creek centers around four saltwater bodies: Little Creek Harbor, Little Creek Cove, Desert Cove, and Little Creek Channel, which connects the coves and harbor with the Chesapeake Bay. Land development surrounding the Base is residential,

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commercial, and industrial. Little Creek Reservoir/Lake Smith, located upgradient of the Base, serves as a secondary drinking water supply for parts of the city of Norfolk.

JEB Little Creek was placed on the National Priorities List in May 1999 (U.S. Environmental Protection Agency [USEPA] ID #VA5170022482). The Federal Facilities Agreement for JEB Little Creek was signed in November 2003 (Navy, 2003).

## 3.0 SWMU 3 Description and History

#### 3.1 Historic Site Use

SWMU 3, the Pier 10 Sandblast Yard, is located in a developed area on Little Creek Harbor's western side (Figure 2). SWMU 3 was used for sandblasting boats between 1962 and 1984 (RGH, 1984). Sandblasting activities took place on a 0.04-acre concrete pad located to the west of Building 1263. After 1984, anchors and chains were sandblasted on the concrete pad. The used sandblast material was periodically sampled using extraction procedure toxicity testing protocols and removed from the site for disposal. Results of these toxicity tests indicated the sandblast residue was not hazardous. Paint chips and blast grit covered the unpaved ground south of the pad to the water's edge and the near-shore bottom of Little Creek Harbor. In 1982, a fence was installed around the sandblasting area to limit access to the site and prevent windblown sandblast materials from migrating outside the fenced area. In 1995, the concrete pad was taken out of service, and a new sandblasting area was constructed in the northwestern corner of the site. The new sandblasting area consisted of a 0.4-acre concrete pad surrounded by a 4- to 5-foot-high concrete wall. All sandblasting operations at SWMU 3 ceased in 1996 when the new indoor sandblasting facility, CB125, adjacent to SWMU 7b, was completed.

Historical releases from SWMU 3 likely occurred when sandblasting residue was lying directly on the ground surface. Prior to 1993, runoff from sandblasting operations occurred as sheet flow to Little Creek Harbor. In 1993, a catch basin connected to a Virginia Pollution Discharge Elimination System (VPDES)-permitted outfall was constructed. Surface drainage from the more recent sandblasting area flowed to this catch basin and emptied into Little Creek Harbor via Virginia Department of Environmental Quality (VDEQ)-permitted Outfall 008 (Permit Number VA0079928), located under Pier 10, about 35 feet from its easternmost edge. Under the VDEQ permit, Outfall 008 has no monitoring requirements. Some runoff from other areas of SWMU 3 may continue to flow directly into Little Creek Harbor. Currently, residual abrasive blast material (ABM) is present on the unpaved ground surface south of the concrete pad to the water's edge and in Little Creek Harbor sediment in the vicinity of Pier 10, the recreational marina, and south to Pier 8. **Figure 3** displays the conceptual site model for SWMU 3.

#### 3.2 Current Site Use

Most of the aquatic activities within the SWMU 3 boundary are associated with the Pier 10 dry dock area and the recreational marina. The Pier 10 dry dock area of Little Creek Harbor is used for dive team training and boat maintenance. Boats are brought, with the assistance of a tug boat, to the Pier 10 dry dock for maintenance. Once boats are secured, water is removed from the dry dock at approximately 2,000 gallons per minute using ballast pumps. During these activities, sediments are disturbed; therefore, vertical mixing of the sediment in this area is likely. The recreational marina is used by military dependents and former active-duty members. Personal watercraft docked at the marina may cause minimal vertical mixing in the sediment. Substantial mixing is unlikely since the marina area is a "no wake" zone for boaters. A fueling station and fish-cleaning station are located south of the boat slips. For security purposes, recreational swimming, fishing, and crabbing are not permitted in Little Creek Harbor.

## 3.3 Dredging History

Dredging maintenance activities vary within the vicinity of SWMU 3. Little Creek Channel (not including the near-shore sediments that make up a part of SWMU 3) is maintained by U.S. Army Corps of Engineers and has been regularly dredged since 1928 to maintain a depth of approximately 27 feet below mean low water (mlw) (**Figure 2**). The surrounding area is maintained by JEB Little Creek to depths ranging from approximately 18 to 31 feet below mlw plus a 1-foot over-dredge. In 1965, the areas around Piers 1 through 8, south of the

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recreational marina (just southwest of the Pier 10 dry dock), were dredged to 18 feet below mlw plus a 2-foot over-dredge. In 1999, 2 to 5 feet of sediment were removed from beneath the Pier 10 dry dock, to a depth of approximately 31 feet below mlw plus a 1-foot over-dredge. Some minor sediment removal also occurred in the vicinity of the floating dry dock at Pier 10 just prior to the start of the Remedial Investigation (RI) sampling (Fall 2002). The recreational marina area is permitted for a dredge depth of approximately 10 feet below mlw plus a 1-foot over-dredge; however, this area has not been dredged since 1965.

### 3.4 Human Health Risk Summary

A baseline Human Health Risk Assessment (HHRA) was conducted for SWMU 3 as part of the RI (CH2M HILL, 2005) and Supplemental RI (CH2M HILL, 2009a). Reasonable maximum exposure non-cancer hazards and cancer risks associated with current and future human exposure to site sediment and surface water were below or within the USEPA acceptable levels. The Navy, USEPA, and VDEQ agreed there is no unacceptable human health risks associated with exposure to sediment or surface water.

#### 3.5 Ecological Risk Summary

A Screening Ecological Risk Assessment (SERA), constituting Steps 1 and 2 of the Ecological Risk Assessment (ERA) process, and the first step (Step 3A) of a baseline ERA were conducted for SWMU 3 as part of the RI (CH2M HILL, 2005). Based on the results of the ERA, the Navy, USEPA, and VDEQ agreed there are no unacceptable ecological risks associated with direct or indirect exposure to surface water. However, a comparison of sediment data to screening values, along with the evaluation of near shore benthic community survey data in the ERA, indicated that ABM-related constituents (copper, lead, nickel, tin, and zinc) from the site, as well as mercury and polycyclic aromatic hydrocarbons (PAHs), may have adversely affected ecological receptors (primarily the benthic invertebrate community) in the portions of Little Creek Harbor adjacent to SWMU 3.

A revised ERA was conducted as part of a Supplemental RI to define the spatial limits (lateral and vertical) of ABM and to determine if there is a correlation between metals and ABM in sediment (CH2M HILL, 2009). The revised ERA concluded ABM was significantly correlated with copper, lead, nickel, tin, and zinc in surface sediments and is a good indicator of site influence for defining the spatial extent of contamination. Although commonly used as an anti-fouling agent in marine paints, mercury concentrations detected in sediment were not correlated with ABM content, and concentrations potentially posing risk were spatially limited. PAHs were detected in sediment across the site at concentrations potentially contributing to unacceptable risk; however, these are not associated with historical sandblasting activities and are therefore not considered a result of a CERCLA release.

## 3.6 Identification of Remedial Action Objectives

The revised ERA recommended that RAOs be established for sediment and that preliminary remediation goals (PRGs) be developed for the five ABM-related constituents of concern (COCs) (copper, lead, nickel, tin, and zinc) based on the extent of ABM, risk-based screening values from available literature, and comparison to urban background levels. The revised ERA also recommended that mercury and PAHs be considered as secondary factors based upon their lack of correlation with ABM and poor spatial linkage to SWMU 3. As a result, the following preliminary RAO was drafted for sediment:

 Remove ABM-containing sediments and associated metals from the site to the greatest extent practicable to allow a benthic invertebrate community consistent with the urban nature of Little Creek Harbor to become established.

## 3.7 Development of Preliminary Remediation Goals

To meet the preliminary RAO, ABM (based upon visual observation) and metals-based PRGs were established. As part of the Supplemental RI, simple linear regression was used to investigate potential correlations between the metals concentrations in surface sediments and the amount of ABM present. All surface sediment samples from 2002 and 2007 for which ABM content was quantified were used in the analysis. The 2002 and 2007 surface sediment data indicate a relatively strong (and statistically significant) positive correlation between the ABM content in surface sediment samples and the concentrations of copper, lead, nickel, tin, and zinc. The resulting

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regression equations were used to calculate associated sediment concentrations using 1 percent ABM (the lowest possible integer; also, percent ABM in sediment was only estimated to the nearest integer during the 2007 SRI sampling). These values, along with consideration of site-specific background concentrations and literature-based sediment effect levels (effects range-low [ER-L], effects range-median [ER-M], threshold effects level [TEL], and probable effects level [PEL]), were used to define the sediment PRGs for the five primary COCs (**Table 1**). The PRGs for copper, lead, and tin were based upon the regression equations (at 1 percent ABM); none of these PRGs exceeded the ER-M (where available) and all were reasonably comparable to the maximum background concentration. The PRG for nickel was set at the maximum background concentration because maximum background exceeded the regression-derived value and was below the ER-M. For zinc, the ER-M was selected as the PRG because the regression-derived value exceeded all effects-based criteria. It should be noted, however, the maximum background value for zinc also exceeded the ER-M. In addition to the PRGs for the primary COCs, a PRG for ABM content in sediment was established at equal to or less than 1 percent, based on visual observation.

#### 3.8 Delineation of Lateral and Vertical Extent Boundary

In 2009, following the development of PRGs, available surface sediment data were used to preliminarily define lateral extent of impacted sediment. In conjunction with ABM content, a remediation quotient (RQ) for the ABMrelated COC PRGs was calculated. The RQ is defined as the ratio of the PRG to the sediment concentration. A sample location was considered "impacted" if: (1) ABM is present at greater than 1 percent and (2) the average RQ for the five COCs exceeds 1.0 or if the RQ for one or more individual COCs exceeds 1.5. In November 2009, additional sediment sampling was conducted to define the vertical extent. To perform the vertical delineation, the site was divided into a 100-foot-by-100-foot grid system. Sediment cores were collected from within each grid sector located within the lateral boundary and the maximum vertical extent of ABM (greater than 1 percent) was visually identified. A 6-inch vertical sample was then taken from the sediment core just below this ABM-defined depth and analyzed for the metal COCs. If the RQ criteria were met in this sample, no additional samples at deeper depths were analyzed. As documented in the final, approved SAP (CH2M HILL, 2009b), the vertical extent was defined as the shallowest depth at which the RQs were below established criteria. Following the November 2009 sampling event, the boundary was refined to include all "impacted" grid sectors as previously defined. The preliminary 2009 lateral and vertical boundary of potentially impacted sediment, as defined utilizing data collected as of November 2009, encompasses an area of approximately 13.3 acres and consists of approximately 61,266 cubic yards of sediment (Figure 2).

#### 3.9 Review of Remedial Alternatives

During development of a feasibility study (FS) for SWMU 3, remedial alternatives and their overall effectiveness in reducing site-wide risk were evaluated, as well as engineering restraints and upcoming military construction (MILCON) and dry dock maintenance activities. Results of the preliminary FS evaluation indicated that the largest reduction in risk (based upon the 2009 evaluation criteria for ABM and RQ) would be accomplished through remediation of the rip-rap area along the southern shoreline of the site, with minimal additional risk reduction recognized as costs significantly increased under the remaining scenarios (which also considered offshore areas and the marina). As a result of this evaluation, the JEB Little Creek Partnering Team discussed the need for additional information regarding the current condition of the benthic invertebrate community for determining remedial alternative effectiveness and measuring long-term achievement of the preliminary RAO (establishment of a benthic community).

## 4.0 Project Objectives and 2010 Field Investigation Activities

## 4.1 Objectives for the 2010 Benthic Invertebrate Investigation

Following the preliminary evaluation of remedial alternatives, the JEB Little Creek Tier I Partnering Team agreed additional information was required to evaluate the overall effectiveness of a remedy with respect to achievement of the previously identified preliminary RAO through establishment of a benthic community within SWMU 3. Therefore, the primary objective for benthic invertebrate sampling at SWMU 3 was to evaluate the

current condition of the benthic invertebrate community within the 2009 preliminary impacted sediment lateral boundary to support the evaluation of remedial alternatives and assist in measuring remedy success against the preliminary RAO. The environmental questions to be answered were:

- What is the composition and condition of the existing benthic invertebrate community at SWMU 3 and how
  does it vary spatially throughout the site?
- Is the composition and condition of the existing benthic invertebrate community at SWMU 3 correlated with the concentration of the COCs and/or the presence of ABM?

Due to scheduled maintenance of the Dry Dock in 2012, an Engineering Evaluation/Cost Analysis (EE/CA) was to be prepared for completion of a non-time-critical removal action (NTCRA) in the northern portion of the site and the area surrounding the Dry Dock. Therefore, a third environmental question was also included in the SAP as follows:

• What is the site condition following completion of the NTCRA, and what action is required at SWMU 3 to meet the RAO and what is the spatial extent of such an action?

Following additional Team discussion, it was agreed the site would be addressed as a whole under the completion of a FS, Proposed Plan, and Record of Decision; therefore, a NTCRA will not be completed. Thus, the third environmental question has been modified as follows:

• What action is required at SWMU 3 to meet the preliminary RAO and what is the spatial extent of such an action?

These environmental questions are evaluated in Section 5 and Attachment D.

#### 4.2 2010 Benthic Invertebrate Field Investigation Activities

Benthic invertebrate evaluation sediment sampling was conducted in August and September 2010, in accordance with the *Final SWMU 3 – Pier 10 Sandblast Yard and SWMU 7b – Desert Cove Benthic Invertebrate Sediment Sampling Work Plan and Sampling and Analysis Plan* (CH2M HILL, 2011), to meet the previously outlined project quality objectives. Composite surface sediment samples were collected at 60 stations within Little Creek Harbor from 0 to 6 inches below sediment surface (bss) using a 6-inch-by-6-inch petite Ponar dredge (**Table 2, Figure 4**). Where insufficient penetration or evidence of significant disturbance (such as washouts) was observed, a larger (9-inch by 9-inch) clamshell grab sampler was deployed and a 6-inch by 6-inch subset of that sample was retained.

Before samples were collected, surface water quality parameters (dissolved oxygen [DO], oxidation-reduction potential [ORP], pH, temperature, conductivity, turbidity, and salinity) were collected from the top, middle, and bottom of the water column at each sample location using a YSI water quality meter (**Table 3**). Two surface sediment grab samples were collected from 3 locations (6 total) surrounding each of the 60 sample stations. While still in the Ponar sampler, each grab sample was examined for an oxidation-reduction (redox) boundary (**Table 3**). Sediment from one grab sample was placed directly in a sample container for Acid Volatile Sulfide/Simultaneously Extracted Metals (AVS/SEM) analysis. One grab sample from each location was designated for estimating ABM content and analytical sample collection and was placed in a disposable aluminum pan for homogenization. Following sample homogenization, ABM content was estimated using approximately 250 milliliters (ml) of the composited sediment. Fines were decanted from the sample, and the percent volume of ABM was visually estimated. Following visual examination, 60 composite surface sediment samples were collected and analyzed for select metals (copper, lead, nickel, tin, and zinc), total organic carbon (TOC), pH, grain size, and AVS/SEM.

The second grab sample from each location was designated for benthic invertebrate sieving and was placed directly into a 500-micrometer mesh sieve bucket. Benthic invertebrate grab samples surrounding 3 of the 60 sample stations were evaluated separately as replicate samples. Sediment reserved in the sieve bucket was gently washed with site water to remove fine-grained material. Material remaining on the sieve was rinsed with site water into 2,000-ml polyethylene sample containers. To allow for an adequate volume of preservative to be added, each container was only half filled with the sieved material. Additional site water and approximately

200 ml of buffered formalin was added to each sample. A cardstock label was placed inside each container, and the sample was capped and gently shaken to ensure even distribution of the preservative. Sixty-six (57 composite and 9 replicate) samples were collected for benthic invertebrate enumeration.

Excess surface sediments were returned to the water body. Disposable sampling equipment was rinsed with site water before disposal as solid waste. All non-disposable equipment, such as the Ponar dredge, was rinsed with site water between sample locations.

#### 4.3 Data Management and Evaluation

Data management and tracking, from the time of field collection to receipt of validated electronic analytical results, is of primary importance and reflects the overall quality of analytical results. Field samples and their corresponding analytical tests were recorded on chain-of-custody forms, which were submitted with the samples to the offsite laboratory. Chain-of-custody entries were checked against the site-specific project instructions and work plans to verify that all designated field samples were collected and submitted for the appropriate analysis. Upon receipt of the samples by the laboratories, a comparison to the field information was conducted to verify that each sample was analyzed for the correct parameters and appropriate quality assurance/quality control (QA/QC) samples were collected.

#### 4.3.1 Data Qualifiers

Analytical data reports for sediment samples analyzed for select metals, TOC, and AVS/SEM were submitted in hardcopy and electronic format for internal data validation. Procedures used for validation were *Region III Modifications to the National Functional Guidelines for Organic Data Review, Multi-media, Multi-concentration* (USEPA, 1994) and *Region III Modifications to Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analysis* (USEPA, 1993). Analytical data are provided in **Attachment A**, and the data validation summaries are provided in **Attachment B**.

The data validation qualifiers, or flags, used for the data are the following:

- Data qualified with a "B" flag by the data validator indicates the analytes have also been detected in a field, equipment, or trip blank or in a laboratory QA/QC sample. The concentration of a B-qualified result is less than 10 times the concentration of the constituent for an associated QA/QC result. If the sample concentration is less than 10 times the associated blank concentration, the conclusion is that the parameter was not detected. Potential sources of blank contamination are discussed as follows.
- Data qualified with a "J" flag indicates the analyte is present, but the value is estimated.
- Data qualified with a "K" flag indicates the analyte is present, but the reported value may be biased high and the actual value is expected to be lower.
- Data qualified with an "L" flag indicates the analyte is present, but the reported value may be biased low and the actual value is expected to be higher.
- Data qualified with a "U" flag indicated the analyte was not detected above the reported laboratory detection limit.

Grain size and pH data underwent an internal QC analysis by the project chemist. Benthic invertebrate data (**Attachment C**) underwent an internal QC check by the project senior ecological risk assessor.

#### 4.3.2 Comparison Criteria

#### 4.3.2.1 Laboratory and Sample Blank Contamination

In some instances, constituents detected in samples may have been introduced during field sampling, transportation to the analytical laboratory, or during laboratory procedures. A variety of blank samples were analyzed and used in the QA/QC process to determine which of the constituents may or may not have been attributed to the field sample.

Field blanks were collected to account for ambient conditions during sample collection. Equipment and rinsate blanks were collected to determine if the equipment used to collect the samples (such as Ponar dredges and sample containers) was adequately clean. In addition, the laboratory analyzed method blanks in each batch of 20 samples to verify instrument cleanliness and function. Common phthalate compounds can be introduced during the analytical process and are often considered laboratory contaminants.

To determine if a "B" qualifier should be assigned to a solid sample, a unit conversion was performed, whereby solid sample concentrations relative to laboratory blank concentrations were calculated by dividing the solid concentration by the fraction of moisture, then dividing the result by 5. When blank samples were found to contain common laboratory contaminants, each of the solid field samples associated with that blank that contained up to 10 times the concentrations in the blanks were qualified during data validation with a "B" for that compound. A "B" qualifier means that the compound may not be attributed to the site at that sample location. When a sampling or laboratory blank contained constituents other than the common laboratory contaminants, each of the solid field samples associated with that blank that contained up to 5 times the concentration was qualified during data validation with a "B" for that compound.

#### 4.3.2.2 Background Data

In June 2007, the Navy, in partnership with USEPA and VDEQ, agreed to collect background sediment samples from an urban cove area unaffected by sandblasting activities for use in developing remediation goals for SWMU 3. Following a review of historical data, the northern portion of Little Creek Cove was identified as a potentially suitable area for this purpose. Similar to SWMU 3, Little Creek Cove receives storm water runoff from various locations within the facility, including other CERCLA sites within the ER Program.

A traditional, statistically-based work plan was not developed for the collection of urban background sediment samples. In July 2007, surface sediment grab samples were collected along a series of transects and visually inspected for grain size and ABM content. Based upon these observations, eight surface sediment samples (and one field duplicate) were collected (Figure 5) and analyzed for the SWMU 3 COCs (copper, lead, mercury, nickel, tin, and zinc), TOC, pH, and grain size. Three of the samples were also analyzed for AVS/SEM. The data from this background sampling are provided in Attachment D, Table D-1 The background sediment samples were broadly similar in terms of physical characteristics to site samples but tended to be higher in TOC and composed of a higher percentage of fines (silt/clay). In addition, the range of concentrations in the background sediment samples was narrow (low variability), which suggests that these samples represent urban background for this geographical area.

The approach for using these background data is documented in the UFP SAP (CH2M HILL, 2011). These data were used as one of several inputs to develop sediment PRGs for SWMU 3. A comparison of SWMU 3 COC sediment concentrations to the urban background sediment concentrations was conducted. The uncertainties associated with the use of these background data are discussed in **Attachment D**, **Section D.1.1.2**.

#### 4.3.2.3 Preliminary Remediation Goals

Sediment metals results were compared to the previously established PRGs presented in **Table 1** to help define the lateral area for potential remediation. For each sampling grid, sediment metals results were divided by their respective PRGs to establish the associated individual COC RQ values. An average RQ value was then established for each sampling grid using the individual COC RQs.

## 5.0 Ecological Risk Evaluation Summary

This section summarizes the results of the ecological risk evaluation of the additional data collected at SWMU 3 in August and September 2010, subsequent to the revised ERA completed as part of the 2009 Supplemental RI report. The complete ecological risk evaluation is contained in **Attachment D**. These additional data include surface sediment and benthic invertebrates systematically collected throughout the entire site. The purpose of

these additional data was to help evaluate remedial alternatives and to provide a baseline for measuring the achievement of the preliminary RAO developed for the site.

This evaluation is limited to the sediments of Little Creek Harbor adjacent to SWMU 3 and to the primary COCs identified in the 2009 Supplemental RI (copper, lead, nickel, tin, and zinc). Only the data collected in 2010 are quantitatively evaluated. As described in **Section D.1.1 of Attachment D**, there are no unacceptable ecological risks associated with the terrestrial portions of the site due to the lack of significant exposure pathways. Groundwater does not appear to be a significant transport route from the site to Little Creek Harbor for ABM-related constituents. No new surface water data have been collected from the site because no risk drivers were identified for this medium in previous assessments. The focus of this ecological risk evaluation was to address the primary objective and to answer the environmental questions previously presented.

#### 5.1 Risk Characterization

The lines of evidence evaluated included a comparison of 2010 site COC surface sediment concentrations with sediment PRGs developed following completion of the 2009 Supplemental RI and a quantitative statistical evaluation of benthic invertebrate survey data collected in 2010. Sediment sample screening results are presented in **Table 4**.

#### 5.1.1 Comparison with Sediment PRGs

The surface sediment evaluation was conducted using the following spatial groupings: (1) Near Shore Area; (2) Marina; (3) Dry Dock; and (4) Offshore Area (Figure 4). A sample meets the decision criteria relating to the sediment PRGs if: (1) visible ABM is less than or equal to 1 percent; (2) the average RQ is less than 1; and (3) no individual RQ is greater than 1.5. For all areas combined, ABM exceeded 1 percent in 24 of 58 samples (two samples did not have data for this parameter), one or both RQ criteria were exceeded in 24 of 60 samples, and both the ABM and RQ criteria were exceeded in 18 of 60 samples (Figure 6). However, the SEM/AVS ratio, a measure of metal bioavailability, exceeded one in only 2 of 60 samples, and only one of these two samples (SD-516, in the Near Shore Area) also failed the ABM and/or the RQ criteria (although the SEM/AVS ratio was only slightly over one [1.10] at SD-516). Fourteen benthic invertebrate taxa were observed at SD-516, with a total density of 560 organisms per square meter. Both of these values were well above the median value that was calculated across all 60 grids (Figure 5). Pollution sensitive taxa were also observed at SD-516 (6 total pollution sensitive organisms, among the highest totals observed at the site), comprising about 10 percent of the community. The nearby Near Shore sampling grids SD-523 and SD529, which also failed both the ABM and RQ criteria but had SEM/AVS ratios below one, had similarly high number of taxa and densities, and also contained pollution sensitive taxa.

None of the 3 samples from the Dry Dock exceeded either the ABM or the RQ criteria. The average percent ABM in the Dry Dock samples was 0.67 and the mean average RQ was 0.76. The lack of exceedances is likely the result of dredging that has occurred in this area in 1999 and 2002. For the Marina, 7 of 11 samples failed the ABM criterion, 5 of 11 samples failed the RQ criteria, and 5 of 11 samples failed both. The average percent ABM was 2.44, and the mean average RQ was 1.10. For the Near Shore Area, 11 of 19 samples failed the ABM criterion, 10 of 19 samples failed the RQ criteria, and 9 of 19 samples failed both. The average percent ABM was 12.3, and the mean average RQ was 3.19. For the Offshore Area, 6 of 25 samples failed the ABM criterion, 9 of 27 samples failed the RQ criteria, and 4 of 27 samples failed both. The average percent ABM was 0.87, and the mean average RQ was 0.98.

#### 5.1.2 Benthic Invertebrate Surveys

Benthic invertebrate surveys were conducted in 2010 at all 60 grids within the 2009 preliminary impacted sediment lateral boundary. Organism counts are noted in the bottom right corner of each grid on **Figure 5**. During the 2010 sampling, organism counts were highly variable but most locations had low numbers of organisms. Of the 60 grids sampled, 14 (23.3 percent) had zero organisms (for each of the three grids [534, 550, and 558] that had replicate samples, at least one replicate had no organisms; however, the average of the three replicates was used to represent the grid, so none of these grids was considered to have no organisms) and 33 (55 percent) had

fewer than 10 total organisms. Total densities ranged from 0 to 2,414 organisms per square meter, and number of taxa ranged from 0 to 35. The benthic invertebrate community at the site was dominated by polychaetes, most of which are pollution tolerant. Polychaetes accounted for about 52 percent of the total benthic invertebrate community. Bivalves, the next most numerous group, comprised about 21 percent of the total community. Pollution sensitive organisms were detected in some samples, but were relatively uncommon. About half (31 of 60) of the sampling grids (including the 14 grids with no total organisms) had no pollution sensitive organisms and only 6 grids had more than 5 total pollution sensitive organisms (5 of these 6 grids were in the Near Shore Area).

#### 5.1.3 Correlation Between Benthic Metrics and Physical/Chemical Parameters

In Section 4.1, the following environmental question was outlined:

• Is the composition and condition of the existing benthic invertebrate community at SWMU 3 correlated with the concentration of the COCs and/or the presence of ABM?

In this subsection, a statistical evaluation of the 2010 benthic invertebrate data is conducted in order to answer this question.

As outlined in the Sampling and Analysis Plan (SAP), a statistical evaluation of the 2010 benthic invertebrate survey data was to be conducted using the following 10 metrics: (1) number of taxa (taxa richness); (2) total density; (3) percent contribution of the dominant taxon; (4) density of the dominant taxon; (5) percent Spionid polychaetes; (6) percent Mediomastus and Capitella polychaetes; (7) density of pollution tolerant organisms; (8) percent pollution tolerant organisms; (9) density of pollution sensitive organisms; and (10) percent pollution sensitive organisms. However, because of the relatively large number of sampling grids with zero organisms (14 of 60 or 23.3 percent), only number of taxa and total density were used in the statistical evaluation. Zero counts always yield meaningful values for these metrics, which is not always true for the other eight metrics. A zero value for number of taxa and total density means that no organisms were present, a meaningful result. However, if a sample contains no organisms (and is therefore presumed to be impacted), it has an undefined value for any of the parameters based upon a percentage (since you are dividing by zero). The sample would also have a value of zero for density of the dominant taxon and density of pollution tolerant organisms; low values for these two parameter suggest a healthy, not an impacted, community. These two metrics were examined for correlations with physical and chemical parameters, including those for surface sediment, the concentrations of the COCs, average RQ, grain size, TOC, pH, SEM/AVS ratio, and percent ABM; water depth; and, for the water column (measured just above the sediment surface), DO, ORP, salinity, temperature, specific conductivity, turbidity, and pH. Both statistical and observational methods were used to identify chemical and/or physical parameters that were potentially associated (correlated) with differences in the values of the benthic invertebrate metrics.

Based upon a non-parametric test, number of taxa had 18 significant correlations (out of 25 possibilities) with the physical and chemical parameters. These correlations were relatively weak, with very few coefficient of determination ( $R^2$ ) values above 0.50 (these values indicate the proportion of the variability explained, a measure of the strength of the relationship). Total density had 19 significant correlations (out of 25 possibilities) with the physical and chemical parameters. These correlations were relatively weak, with very few  $R^2$  values above 0.50. Silt and clay had the strongest correlations (maximum  $R^2$  of 0.620), followed by water depth (maximum  $R^2$  of 0.562), bottom DO (maximum  $R^2$  of 0.342), and TOC (maximum  $R^2$  of 0.290). The metal COCs were not significantly correlated with either benthic metric (copper, nickel, and zinc) or were only weakly correlated (tin and zinc). Average RQ was also not significantly correlated with either benthic metric.

Based upon the results of the individual correlations, multiple regression analysis was conducted for number of taxa and total density. These two benthic metrics were significantly positively correlated with one another, with a  $R^2$  value of 0.956. The physical and chemical parameters (silt and clay, TOC, water depth, and bottom DO) that had the highest individual correlations with the benthic invertebrate metrics were included in the multiple regression analysis. Average RQ and percent ABM were also included because they represented the PRG decision metrics; average RQ was not significantly correlated with either benthic metric based upon the non-parametric test ( $R^2$  values of 0.019 and 0.030) and percent ABM was only weakly (but significantly) correlated ( $R^2$  values of 0.180 and 0.165).

For number of taxa, silt and clay, water depth, and average RQ were the variables that were most consistently important to the models. The resulting model containing these three variables was a relatively good predictor, with an adjusted R² value of 0.610. Water depth, which was correlated with bottom DO, was selected preferentially by the model, although bottom DO also entered the forward model (but was not significant in the final model). Of interest, average RQ was consistently an important variable in the model even though its individual correlation to number of taxa was not significant (R² value of 0.019, p=0.30). Further, the sign of its contribution to the model was positive, meaning that higher values for number of taxa were associated with higher average RQ values.

For total density, silt and clay and average RQ were the variables most consistently important to the models. The resulting model containing these two variables was, however, a poor predictor, with an adjusted  $R^2$  value of 0.422. Bottom DO also entered the forward model (but was not significant in the final model). Of interest, average RQ was consistently an important variable in the model even though its individual correlation to total density was not significant ( $R^2$  value of 0.030, p=0.18). Further, the sign of its contribution to the model was positive, meaning that higher values for total density were associated with higher average RQ values.

In summary, silt and clay and average RQ were the best predictors of the benthic invertebrate metrics, along with water depth and, to a lesser extent, bottom DO. However, average RQ was positively correlated with the metrics. Silt and clay was negatively correlated with the metrics, suggesting that depositional areas with high silt and clay content (and likely organic loading) were detrimental to the benthic invertebrate community. Water depth was also negatively correlated with the metrics, while bottom DO was positively correlated. Thus, shallower waters with less deposition had higher levels of DO, allowing a relatively "healthier" benthic invertebrate community to occur, as measured by the benthic metrics evaluated. Conversely, these areas were generally along the site shoreline and thus tended to have higher concentrations of metals and ABM, which is likely why the RQ variables were positively correlated with the benthic metrics. Based upon these data, the physical factors (such as bottom DO) had more effect on the benthic invertebrate community than the chemical factors related to the site. This may be due to limited metal bioavailability, as the SEM/AVS ratios were almost always less than one. Thus, low DO at the bottom of the water column (just above the sediment surface) appears to have a major impact on the benthic community. This condition is not uncommon in urban harbors with high organic loading in the Chesapeake Bay system, particularly in summer (July and August) when the amount of oxygen the water column can hold, which decreases as water temperature increases, is at a minimum. Freshwater inflow carrying nutrients (primarily nitrogen and phosphorus) from agricultural and urban runoff, wastewater systems, and atmospheric deposition stimulates the growth of phytoplankton/algae, which later die and sink to the bottom of the water column, where their decomposition by bacteria consumes much of the oxygen from the bottom of the water column (which is why TOC is typically negatively correlated with bottom dissolved oxygen concentrations). This process can be exasperated in deeper waters as water column stratification can develop based upon differences in water temperature and salinity (increases in salinity also reduce the amount of oxygen the water can hold) with depth, isolating the deeper waters from the more oxygenated (through diffusion with the air, wind action, and wave/tidal action) surface layers. Based upon the 2010 data, a bottom DO of 4 milligrams per liter (mg/L) is an approximate "threshold," at the water temperature and salinity present at the time of sampling, below which impacts to the benthic invertebrate community appear to be most acute at this site. However, since water temperature, and to a lesser extent salinity, vary temporally, this "threshold" cannot be extrapolated to other periods of the year; however, it is a useful qualitative measure for the spatial evaluation of the 2010 data set.

#### 5.1.4 Spatial Analysis

In Section 4.1, the following environmental question was outlined:

• What is the composition and condition of the existing benthic invertebrate community at SWMU 3 and how does it vary spatially throughout the site?

In this section, a statistical evaluation of the 2010 benthic invertebrate data is conducted in order to answer this question.

For each benthic metric, parametric and non-parametric analysis of variance (ANOVA) was used to determine if any differences existed among 2010 area (Dry Dock, Near Shore, Marina, and Offshore) means. Number of taxa and total density showed identical spatial patterns. The highest values of these metrics were found in the Near Shore Area, followed by the Marina (which did not differ significantly from the Near Shore Area), the Offshore Area (which differed from the Near Shore Area but not the Marina), and the Dry Dock (which differed from the Near Shore Area and Marina but not the Offshore Area). Thus, total density and number of taxa were highest in the Near Shore Area and most of the Marina, were zero in the immediate vicinity of the Dry Dock, and were typically very low in the Offshore Area. This distribution does not match well with metal or ABM concentrations, suggesting that other factors (such as low DO) may be as or more important to survival of benthic invertebrates. Bottom DO exceeded 4 mg/L in most Near Shore (with two exceptions; one next to the Dry Dock and one in the southern portion of the site) and Marina grids. Bottom DO does not exceed this value in any Dry Dock grid and in about half of the Offshore Area grids. Bottom DO is also negatively correlated with water depth; the deepest water was generally observed in the Dry Dock and Offshore Areas.

Because a reference area was not sampled for benthic invertebrates, values for the two benthic invertebrate metrics used in the SWMU 3 evaluation (number of taxa and total density) were qualitatively compared among the spatial areas of the site. Values for these metrics were generally highest in the Near Shore and Marina Areas (where metals concentrations and ABM were typically highest) and lowest in the Offshore and Dry Dock Areas (where metals concentrations and ABM were typically lowest). Although the area in the vicinity of the Dry Dock has been dredged as recently as 2002, sufficient time has passed for the benthic community to become reestablished. It appears that physical factors, such as low bottom DO levels and water depth, may be preventing this from occurring since metal concentrations and ABM levels are below remediation criteria. Routine activities associated with Dry Dock activities, such as prop wash from tug boats and operation of the Dry Dock pumps, may also be a factor.

#### 5.2 Risk Evaluation

In Section 4.1, the following environmental question was outlined:

• What action is required at SWMU 3 to meet the preliminary RAO and what is the spatial extent of such an action?

In this section, the results for the lines of evidence evaluated are integrated to answer this question. The other two environmental questions were evaluated in the previous two subsections.

Because a suitable reference area was not sampled, there is insufficient data to fully evaluate the preliminary RAO (to allow a benthic invertebrate community consistent with the urban nature of Little Creek Harbor to become established) since a quantitative measure of a benthic invertebrate community consistent with the urban nature of Little Creek Harbor (but unaffected by SWMU 3) is unavailable. However, the portion of the site with the highest concentrations of metals and ABM (Near Shore Area and portions of the Marina) typically has the most developed benthic invertebrate community relative to other areas of the site (Dry Dock and Offshore Areas), where metals concentrations and ABM are typically lower. This may be due to limited metal bioavailability, as the SEM/AVS ratios were almost always less than one in 2010 samples (for 58 of 60 grids). Although AVS may vary seasonally, the 2010 data, collected in late summer when DO levels are typically lowest and organisms are typically most stressed, may be the most relevant data on a seasonal basis. None of the Dry Dock samples, and very few of the Offshore Area samples, fail both the percent ABM and RQ criteria. The impacts to the benthic invertebrate community in these areas appear to be related to physical factors not associated with SWMU 3 (such as water depth and bottom DO concentrations). Since ABM is essentially inert (based upon grain size analysis, ABM appears predominantly in the coarse sand fraction; the "black beauty" materials consist mainly of silicon dioxide [sand], aluminum oxide, iron oxide, and calcium oxide) and the metals in the paint residues do not decay (since they are elements, although they may change chemical form based upon ambient environmental conditions) and increase sediment oxygen demand, these site-related factors do not contribute to reduced DO levels at the bottom of the water column. Although the current, non-CERCLA-related physical characteristics of the site (such as bottom DO concentrations) may be having more of an impact on the condition of the benthic

invertebrate community than the CERCLA-related metals detected in site sediments (due to bioavailability considerations), the magnitude of these metals concentrations may potentially result in unacceptable risks to ecological receptors should these physical characteristics change over time; therefore, remedial action at SWMU 3 is warranted. Given the current physical limitations in the Dry Dock and Offshore Areas (primarily low bottom DO concentrations), it is unlikely that a benthic invertebrate community that would approach that in a similar urban reference area would be established following remedial action; therefore, the remedial action objectives established for the site should focus on the reduction of metals concentrations and not the establishment of a comparable (to an urban reference condition) benthic invertebrate community.

## 6.0 Conclusions and Recommendations

Based upon the regression analysis, silt/clay and average RQ were the best predictors of the benthic invertebrate metrics, along with water depth and, to a lesser extent, bottom DO. However, average RQ was positively correlated with the metrics. Silt/clay was negatively correlated with the metrics, suggesting that depositional areas with high silt/clay content (and likely organic loading) were detrimental to the benthic invertebrate community. Water depth was also negatively correlated with the metrics while bottom DO was positively correlated. Thus, shallower waters with less deposition had higher levels of DO, allowing a relatively "healthier" benthic invertebrate community to occur, as measured by the benthic metrics evaluated. Conversely, these areas were generally along the site shoreline and thus tended to have higher concentrations of metals and ABM. Based upon these data, the physical factors (such as bottom DO) had more effect on the benthic invertebrate community than the chemical factors related to the site. This may be due to limited metal bioavailability as the SEM/AVS ratios were almost always less than one in 2010 samples (for 58 of 60 grids). Although AVS may vary seasonally, the 2010 data, collected in late summer when DO levels are typically lowest and organisms are typically most stressed, may be the most relevant data on a seasonal basis.

The portion of the site with the highest concentrations of metals and ABM (Near Shore Area and portions of the Marina) typically has the most developed benthic invertebrate community relative to other areas of the site (Dry Dock and Offshore Areas), where metals concentrations and ABM are typically lower. None of the Dry Dock samples, and very few of the Offshore Area samples, fail both the percent ABM and RQ criteria. The impacts to the benthic invertebrate community in these areas appear to be related to physical factors not associated with SWMU 3 (such as water depth and bottom DO concentrations). Since ABM is essentially inert (based upon grain size analysis, ABM appears predominantly in the coarse sand fraction; the "black beauty" materials consist mainly of silicon dioxide [sand], aluminum oxide, iron oxide, and calcium oxide) and the metals in the paint residues do not decay (since they are elements, although they may change chemical form based upon ambient environmental conditions) and increase sediment oxygen demand, these site-related factors do not contribute to reduced DO levels at the bottom of the water column.

Although the current, non-CERCLA-related physical characteristics of the site (such as bottom DO concentrations) may be having more of an impact on the condition of the benthic invertebrate community than the CERCLA-related metals detected in site sediments (due to bioavailability considerations), the magnitude of these metals concentrations may potentially result in unacceptable risks to ecological receptors should these physical characteristics change over time; therefore, remedial action at SWMU 3 is warranted. Given the current physical limitations in the Dry Dock and Offshore Areas (primarily low bottom DO concentrations), it is unlikely that a benthic invertebrate community that would approach that in a similar urban reference area would be established following remedial action; therefore, the remedial action objectives established for the site should focus on the reduction of metals concentrations and not the establishment of a comparable (to an urban reference condition) benthic invertebrate community.

## 7.0 References

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TABLE 1 Sediment PRGs Benthic Invertebrate Evaluation SWMU 3 - Pier 10 Sandblast Yard JEB Little Creek, Virginia Beach, Virginia

Сорре	er	Lead		Nicke	·I	Tin		Zinc	
TEL	18.7	TEL	30.2	TEL	15.9	Mean Background	8.61	TEL	124
ER-L	34	Mean Background	45.2	ER-L	20.9	Max Background	9.8	ER-L	150
PEL	108	ER-L	46.7	Mean Background	23.2	1% ABM	11.2	PEL	271
Mean Background	155	Max Background	67.6	1% ABM	26.2	ER-L	NA	Mean Background	290
Max Background	184	1% ABM	107	Max Background	26.5	ER-M	NA	ER-M	410
1% ABM	232	PEL	112	PEL	42.8	TEL	NA	Max Background	421
ER-M	270	ER-M	218	ER-M	51.6	PEL	NA	1% ABM	454

#### Notes:

Shaded cells indicate the selected PRG

Values are in milligrams per kilogram (mg/kg)

ER-L – effects range low

ER-M – effects range median

PEL – probable effects level

TEL - threshold effects level

TABLE 2
Sample Summary
Benthic Invertebrate Evaluation
SWMU 3 - Pier 10 Sandblast Yard
JEB Little Creek, Virginia Beach, Virginia

											Analy	ses		
Station ID	Sample ID <sup>1,2</sup>	Sample Collection Date	Sample Collection Time	Easting (X)	Northing (Y)	Water Depth (feet)	Water Elevation (feet NAVD88)	Sediment Surface Elevation (feet NAVD88)	SWMU 3 COCs <sup>3</sup> (SW- 846 6010B/SOP105 and SW-846 7471A/SOP104)	pH (SW-846 9045C/ SOP187)	TOC (Lloyd Kahn/ SOP 221)	AVS/SEM (EPA 821-R-91- 100/AVS/SEM)	Grainsize (ASTM D422)	Benthic Invertebrates
	LW03-SD501-00-10C	9/2/2010	7:55:00	12159250.5	3500149.0	4.3	1.3	-3.1	Х	Х	Х	Х	Х	Х
LW02 CDF01	LW03-SD501-01-10C			12159251.3	3500121.0	4.7	1.3	-3.4						
LW03-SD501	LW03-SD501-02-10C			12159229.6	3500179.4	3.5	1.3	-2.2						
	LW03-SD501-03-10C			12159279.4	3500179.3	9.2	1.3	-7.9						
	LW03-SD502-00-10C	9/2/2010	8:30:00	12159250.4	3500250.4	8.9	0.4	-8.5	Х	Х	Х	Χ	Х	)
111/00 00500	LW03-SD502-01-10C			12159235.0	3500221.6	8.3	0.4	-7.8						
LW03-SD502	LW03-SD502-02-10C			12159277.3	3500221.3	8.9	0.4	-8.5						
	LW03-SD502-03-10C			12159254.1	3500270.7	9.6	0.4	-9.2		1				
	LW03-SD503-00-10C	9/2/2010	9:40	12159262.8	3500357.9	4.4	0.2	-4.3	Х	Х	Х	Х	Х	
	LW03-SD503-01-10C			12159277.9	3500379.7	5.4	0.2	-5.3						
LW03-SD503	LW03-SD503-02-10C			12159250.2	3500330.8	5.4	0.2	-5.3						
	LW03-SD503-03-10C			12159287.8	3500329.3	4.3	0.2	-4.2						
	LW03-SD504-00-10C	8/31/2010	10:30	12159350.8	3500050.5	17.3	1.3	-16.1	Х	Х	Х	Х	Х	
	LW03-SD504-01-10C			12159320.0	3500077.4	14.9	0.4	-14.5	,		7.			
LW03-SD504	LW03-SD504-02-10C			12159378.0	3500078.6	16.9	0.4	-16.5						
	LW03-SD504-03-10C			12159337.8	3500030.1	12.8	0.4	-12.4						
	LW03-SD504A-00-10C	8/31/2010	8:30	12159349.1	3499949.0	12.3	1.5	-10.8	Х	Х	Х	Х	Х	
	LW03-SD504A-01-10C			12159329.2	3499926.6	4.8	-0.5	-5.2						
LW03-SD504A	LW03-SD504A-02-10C			12159378.6	3499921.5	13.7	-0.5	-14.2						
	LW03-SD504A-03-10C			12159350.1	3499977.8	10.9	-0.5	-11.4						
	LW03-SD505-00-10C	8/31/2010	15:20	12159348.0	3500151.1	14.5	1.1	-13.4	Х	Х	Х	Х	Х	)
	LW03-SD505-01-10C			12159323.1	3500120.3	13.8	1.4	-12.3						
LW03-SD505	LW03-SD505-02-10C			12159378.6	3500120.0	15.7	1.4	-14.2						
	LW03-SD505-03-10C			12159349.9	3500178.9	13.4	1.4	-12.0						
	LW03-SD506-00-10C	9/10/2010	11:45	40450040.7	0500050.0				Х	Х	Х	Х	Х	
	LW03-SD506P-00-10C	9/10/2010	11:50	12159349.7	3500250.2	13.8	1.4	-12.3	Х					
LW03-SD506	LW03-SD506-01-10C			12159348.6	3500221.5	14.3	1.4	-12.8						
	LW03-SD506-02-10C			12159321.1	3500279.9	9.8	1.4	-8.4						
	LW03-SD506-03-10C			12159377.6	3500279.1	13.8	1.4	-12.4						
	LW03-SD507-00-10C	9/2/2010	12:55	12159349.6	3500349.9	8.4	-0.4	-8.8	Х	Х	Х	Х	Х	
11400 05507	LW03-SD507-01-10C			12159351.5	3500379.8	8.0	-0.4	-8.4						
LW03-SD507	LW03-SD507-02-10C			12159380.1	3500320.4	11.3	-0.4	-11.6		1				
	LW03-SD507-03-10C			12159322.3	3500322.7	7.1	-0.4	-7.5						
	LW03-SD508-00-10C	9/10/2010	16:15	12159355.7	3500458.1	5.6	-1.9	-7.5	Х	Х	Х	Х	Х	
	LW03-SD508-01-10C			12159327.3	3500474.7	4.9	-1.9	-6.8						
LW03-SD508	LW03-SD508-02-10C			12159379.0	3500479.8	5.8	-1.9	-7.7						
	LW03-SD508-03-10C			12159387.5	3500420.6	7.6	-1.9	-9.5	1	1				

TABLE 2
Sample Summary
Benthic Invertebrate Evaluation
SWMU 3 - Pier 10 Sandblast Yard
JEB Little Creek, Virginia Beach, Virginia

											Analy	ses		
Station ID	Sample ID <sup>1,2</sup>	Sample Collection	n Sample Collection Time	Easting (X)	Northing (Y)	Water Depth (feet)	Water Elevation (feet NAVD88)	Sediment Surface Elevation (feet NAVD88)	SWMU 3 COCs³ (SW- 846 6010B/SOP105 and SW-846 7471A/SOP104)	рН (SW-846 9045С/ SOP187)	TOC (Lloyd Kahn/ SOP 221)	AVS/SEM (EPA 821-R-91- 100/AVS/SEM)	Grainsize (ASTM D422)	Benthic Invertebrates (SOP IZ-06)
	LW03-SD509-00-10C	9/9/2010	8:40	12159348.4	3500550.3	5.4	1.7	-3.8	Х	Х	Х	Х	Χ	Х
1.W02 CDE00	LW03-SD509-01-10C			12159321.8	3500521.6	5.6	1.7	-3.9						
LW03-SD509	LW03-SD509-02-10C			12159350.0	3500579.8	5.5	1.7	-3.8						
	LW03-SD509-03-10C			12159377.6	3500516.3	9.1	1.7	-7.4						·
	LW03-SD510-00-10C	8/31/2010	11:20	12159448.5	3500049.2	18.9	1.4	-17.6	Х	Х	Χ	Χ	Χ	Х
LW02 CDF10	LW03-SD510-01-10C			12159421.6	3500022.4	18.2	1.0	-17.2						·
LW03-SD510	LW03-SD510-02-10C			12159449.5	3500080.2	17.4	1.0	-16.5						
	LW03-SD510-03-10C			12159476.4	3500021.6	19.3	1.0	-18.3						i
	LW03-SD511-00-10C	8/31/2010	14:10	12159448.9	3500150.8	16.1	1.1	-15.0	Х	Х	Χ	Χ	Χ	Χ
LW03-SD511	LW03-SD511-01-10C			12159448.2	3500120.7	16.3	1.4	-14.9						1
LW03-2D311	LW03-SD511-02-10C			12159421.8	3500179.9	15.4	1.4	-14.0						1
	LW03-SD511-03-10C			12159479.1	3500177.9	16.9	1.4	-15.5						1
	LW03-SD512-00-10C	9/2/2010	12:25	12159451.1	3500249.6	14.8	0.5	-14.4	X	Χ	Χ	Χ	Χ	Χ
LW03-SD512	LW03-SD512-01-10C			12159421.7	3500221.3	14.1	-0.4	-14.5						1
LW03-3D312	LW03-SD512-02-10C			12159479.5	3500221.7	15.2	-0.4	-15.5						1
	LW03-SD512-03-10C			12159449.7	3500278.0	13.6	-0.4	-14.0						1
	LW03-SD513-00-10C	9/10/2010	12:40	12159456.3	3500349.1	14.6	0.7	-13.9	X	Χ	Χ	Χ	Χ	Χ
LW03-SD513	LW03-SD513-01-10C			12159450.1	3500320.8	14.8	0.7	-14.1						Į.
LVV03-3D313	LW03-SD513-02-10C			12159420.3	3500389.8	12.8	0.7	-12.1						1
	LW03-SD513-03-10C			12159481.1	3500378.3	14.1	0.7	-13.4						I
	LW03-SD514-00-10C	9/10/2010	15:30	12159451.0	3500450.8	11.5	-1.2	-12.7	X	Χ	Χ	Χ	Χ	Χ
	LW03-SD514P-00-10C	9/10/2010	15:35				-1.2		X					<u>I</u>
LW03-SD514	LW03-SD514-01-10C			12159451.1	3500478.5	10.8	-1.2	-11.9						<u>I</u>
	LW03-SD514-02-10C			12159420.8	3500421.8	10.3	-1.2	-11.4						<u> </u>
	LW03-SD514-03-10C			12159478.7	3500420.8	12.1	-1.2	-13.2						<u> </u>
	LW03-SD515-00-10C	9/9/2010	14:05	12159454.9	3500564.1	9.8	-0.9	-10.7	X	Х	Χ	Х	Χ	Χ
LW03-SD515	LW03-SD515-01-10C			12159423.5	3500578.8	9.0	-0.9	-9.9						<b>I</b>
21100 02010	LW03-SD515-02-10C			12159477.8	3500579.5	9.6	-0.9	-10.5						<b>I</b>
	LW03-SD515-03-10C			12159427.3	3500510.8	7.7	-0.9	-8.6						1
	LW03-SD516-00-10C	9/9/2010	7:55	12159450.6	3500649.5	4.3	1.3	-3.0	X	Χ	Χ	Χ	Χ	X
LW03-SD516	LW03-SD516-01-10C			12159451.1	3500678.3	3.2	1.3	-1.9						<del> </del>
	LW03-SD516-02-10C			12159421.7	3500620.6	6.2	1.3	-4.9						1
	LW03-SD516-03-10C			12159478.0	3500621.5	7.8	1.3	-6.6						i <del></del>
	LW03-SD517-00-10C	8/31/2010	12:35	12159551.8	3500050.5	19.8	1.4	-18.5	X	Х	Х	Х	Χ	X
LW03-SD517	LW03-SD517-01-10C			12159548.3	3500021.6	18.4	1.5	-16.9						
	LW03-SD517-02-10C			12159577.8	3500080.5	20.2	1.5	-18.6						
	LW03-SD517-03-10C			12159521.0	3500077.8	19.8	1.5	-18.2	1					1

TABLE 2
Sample Summary
Benthic Invertebrate Evaluation
SWMU 3 - Pier 10 Sandblast Yard
JEB Little Creek, Virginia Beach, Virginia

											Analy.	ses		
Station ID	Sample ID <sup>1,2</sup>	Sample Collection Date	n Sample Collection Time	Easting (X)	Northing (Y)	Water Depth (feet)	Water Elevation (feet NAVD88)	Sediment Surface Elevation (feet NAVD88)	SWMU 3 COCs³ (SW- 846 6010B/SOP105 and SW-846 7471A/SOP104)	pH (SW-846 9045C/ SOP187)	TOC (Lloyd Kahn/ SOP 221)	AVS/SEM (EPA 821-R-91- 100/AVS/SEM)	Grainsize (ASTM D422)	Benthic Invertebrates (SOP IZ-06)
	LW03-SD518-00-10C	8/31/2010	13:50	12159549.8	3500150.0	20.2	1.0	-19.1	Х	Х	Х	Х	Χ	Х
	LW03-SD518-00-10C-MS	8/31/2010	13:50	12159549.8	3500150.0	20.2	1.0	-19.1	Х					
LW02 CDF10	LW03-SD518-00-10C-SD	8/31/2010	13:50	12159549.8	3500150.0	20.2	1.0	-19.1	Х					
LW03-SD518	LW03-SD518-01-10C			12159578.9	3500120.6	20.7	1.4	-19.3						
	LW03-SD518-02-10C			12159521.6	3500121.4	19.9	1.4	-18.5						i
	LW03-SD518-03-10C			12159548.6	3500178.8	19.9	1.4	-18.5						
	LW03-SD519-00-10C	9/2/2010	11:40	12159550.6	3500250.5	18.2	0.6	-17.6	Х	Х	Х	Х	Χ	Х
LW02 CD540	LW03-SD519-01-10C			12159550.4	3500221.8	18.7	0.6	-18.1						i
LW03-SD519	LW03-SD519-02-10C			12159522.5	3500279.4	16.3	0.6	-15.7						 I
	LW03-SD519-03-10C			12159578.4	3500265.0	18.8	0.6	-18.2						 I
	LW03-SD520-00-10C	9/10/2010	13:45	12159546.7	3500349.8	15.8	-0.8	-16.6	Х	Х	Х	Х	Χ	Х
	LW03-SD520-01-10C			12159526.1	3500320.8	10.5	-0.8	-11.3						
LW03-SD520	LW03-SD520-02-10C			12159575.0	3500324.0	16.7	-0.8	-17.5						
	LW03-SD520-03-10C			12159550.0	3500380.6	14.8	-0.8	-15.7						 I
	LW03-SD521-00-10C	9/12/2010	10:05	12159540.2	3500441.4	15.7	0.7	-14.9	Х	Х	Х	Х	Х	Х
	LW03-SD521-01-10C			12159551.3	3500421.9	16.3	0.7	-15.6	,				7.	
LW03-SD521	LW03-SD521-02-10C			12159578.1	3500479.6	15.8	0.7	-15.1						
	LW03-SD521-03-10C			12159524.8	3500485.4	14.7	0.7	-13.9						
	LW03-SD522-00-10C	9/9/2010	15:00	12159550.8	3500549.8	9.5	-1.6	-11.1	Х	Х	Х	Х	Χ	Х
===	LW03-SD522-01-10C			12159550.9	3500579.5	9.3	-1.6	-11.0	,				7.	
LW03-SD522	LW03-SD522-02-10C			12159580.3	3500520.7	11.7	-1.6	-13.3						
	LW03-SD522-03-10C			12159541.1	3500506.5	10.9	-1.6	-12.5						
	LW03-SD523-00-10C	9/9/2010	9:50	12159550.2	3500650.3	6.1	1.9	-4.2	Х	Х	Х	Х	Х	Х
	LW03-SD523-01-10C			12159533.2	3500669.1	3.8	1.9	-1.9	,				,,	
LW03-SD523	LW03-SD523-02-10C			12159580.4	3500673.3	5.1	1.9	-3.2						
	LW03-SD523-03-10C			12159550.2	3500621.3	10.1	1.9	-8.2						
	LW03-SD525-00-10C	9/2/2010	10:55	12159632.8	3500240.6	19.9	0.7	-19.2	X	X	X	Χ	Χ	Х
	LW03-SD525-01-10C			12159619.0	3500245.4	19.8	0.7	-19.2						<u>^`</u>
LW03-SD525	LW03-SD525-02-10C			12159679.2	3500215.9	21.3	0.7	-20.6						
	LW03-SD525-03-10C			12159640.0	3500206.8	21.1	0.7	-20.4						
	LW03-SD526-00-10C	9/10/2010	14:50						Х	Х	Х	Х	Х	Х
	LW03-SD526P-00-10C	9/10/2010	14:55	12159651.4	3500350.7	17.8	-1.1	-18.9	X	1 ^	<del>  ^</del>	<del>  ^</del>		
LW03-SD526	LW03-SD526-01-10C	7/10/2010	14.55	12159659.6	3500329.7	18.0	-1.1	-19.1	^		<del> </del>			
2	LW03-SD526-02-10C			12159620.5	3500327.7	16.7	-1.1	-17.8			<del> </del>			
	LW03-SD526-03-10C			12159677.9	3500377.4	17.8	-1.1	-18.9			<del>                                     </del>	<del> </del>		i
	LW03-SD527-00-10C	9/12/2010	9:15	12159649.5	3500458.6	13.2	0.1	-13.1	Х	Х	Х	Х	Х	Х
	LW03-SD527-01-10C	7/12/2010	7.15	12159652.4	3500479.4	17.1	0.1	-17.0	^					^_
LW03-SD527	LW03-SD527-01-10C			12159679.0	3500477.4	18.9	0.1	-18.8						 
	LW03-SD527-03-10C			12159613.9	3500420.2	18.4	0.1	-18.3		1	<del> </del>			

											Analy:	ses		
Station ID	Sample ID <sup>1,2</sup>	Sample Collection Date	Sample Collection Time	Easting (X)	Northing (Y)	Water Depth (feet)	Water Elevation (feet NAVD88)	Sediment Surface Elevation (feet NAVD88)	SWMU 3 COCs <sup>3</sup> (SW- 846 6010B/SOP105 and SW-846 7471A/SOP104)	pH (SW-846 9045C/ SOP187)	TOC (Lloyd Kahn/ SOP 221)	AVS/SEM (EPA 821-R-91- 100/AVS/SEM)	Grainsize (ASTM D422)	Benthic Invertebrates (SOP IZ-06)
	LW03-SD528-00-10C	9/9/2010	15:40	12159650.2	3500550.7	13.5	-1.9	-15.4	Х	Х	Х	Χ	Χ	Х
LW02 CDF20	LW03-SD528-01-10C			12159678.0	3500579.7	15.6	-1.9	-17.5						
LW03-SD528	LW03-SD528-02-10C			12159622.1	3500579.2	11.3	-1.9	-13.2						
	LW03-SD528-03-10C			12159649.6	3500521.0	14.0	-1.9	-15.9						<u> </u>
	LW03-SD529-00-10C	9/9/2010	10:40						Х	Х	Х	Χ	Х	Х
	LW03-SD529-00-10C-MS	9/9/2010	10:40	12159649.3	3500650.4	9.2	1.5	-7.6	X			,		
	LW03-SD529-00-10C-SD	9/9/2010	10:40						X					
LW03-SD529	LW03-SD529-01-10C			12159648.9	3500677.1	7.5	1.5	-6.0	^					
	LW03-SD529-02-10C			12159620.7	3500677.1	10.5	1.5	-9.0		+	<del> </del>			
	LW03-SD529-03-10C			12159677.8	3500621.1	15.3	1.5	-13.7						
	LW03-SD530-00-10C	9/2/2010	10:30	12159773.7	3500245.2	22.8	0.9	-22.0	Х	Х	Х	Х	Χ	Х
	LW03-SD530-00-70C			12159761.8	3500243.2	23.0	0.9	-22.0	^	^	^	۸	^	
LW03-SD530	LW03-SD530-01-10C LW03-SD530-02-10C			12159782.1	3500219.0	23.0	0.9	-22.1 -21.5						
														1
	LW03-SD530-03-10C			12159737.0	3500297.8	21.8	0.9	-21.0		.,		.,		
	LW03-SD533-00-10C	9/1/2010	8:40	12159751.3	3500549.6	21.5	-0.5	-22.0	X	Х	Х	Х	Х	Х
LW03-SD533	LW03-SD533-01-10C			12159749.3	3500581.1	26.4	-0.4	-26.8						1
	LW03-SD533-02-10C			12159721.6	3500521.7	15.9	-0.4	-16.3						<b> </b>
	LW03-SD533-03-10C			12159778.8	3500521.3	18.2	-0.4	-18.5						<u> </u>
	LW03-SD534-00-10C	9/1/2010	7:45	12159781.5	3500661.1	30.8	-0.1	-30.9	X	Х	Х	Х	Х	<b> </b>
LW03-SD534	LW03-SD534-01-10C	9/1/2010	7:45	12159779.1	3500679.5	25.8	-0.7	-26.6						Х
21100 02001	LW03-SD534-02-10C	9/1/2010	7:45	12159755.1	3500608.2	29.0	-0.7	-29.7						Х
	LW03-SD534-03-10C	9/1/2010	7:45	12159701.5	3500641.4	12.7	-0.7	-13.4						Х
	LW03-SD535-00-10C	9/1/2010	15:05	12159749.0	3500749.5	13.8	-1.3	-15.0	Х	Х	Х	Χ	Χ	Х
LW03-SD535	LW03-SD535-01-10C			12159779.7	3500722.0	19.5	1.5	-18.0						
LW03-3D333	LW03-SD535-02-10C			12159722.1	3500721.7	15.3	1.5	-13.8						ı
	LW03-SD535-03-10C			12159751.3	3500778.6	14.7	1.5	-13.1						ı
	LW03-SD537-00-10C	9/1/2010	9:50						Х	Х	Х	Χ	Χ	Х
	LW03-SD537-00-10C-MS	9/1/2010	9:50	12159849.1	3500450.7	18.4	-0.6	-19.1	Х					
LW03-SD537	LW03-SD537-00-10C-SD	9/1/2010	9:50						Х					
LWU3-3D33/	LW03-SD537-01-10C			12159850.5	3500480.3	19.5	0.1	-19.4						
	LW03-SD537-02-10C			12159877.6	3500420.6	18.7	0.1	-18.6						
	LW03-SD537-03-10C			12159822.0	3500420.9	18.8	0.1	-18.8						
	LW03-SD538-00-10C	9/1/2010	9:15	12159848.7	3500548.4	29.8	-0.4	-30.3	Х	Х	Х	Χ	Χ	Х
1,4402, 65502	LW03-SD538-01-10C			12159820.0	3500562.8	29.3	0.0	-29.3		1	1			
LW03-SD538	LW03-SD538-02-10C			12159886.9	3500528.0	28.0	0.0	-28.0						
	LW03-SD538-03-10C			12159837.4	3500525.3	24.1	0.0	-24.1						1
	LW03-SD539-00-10C	9/1/2010	10:35	12159850.0	3500650.1	29.7	-1.2	-30.8	Х	Х	Х	Х	Χ	Х
	LW03-SD539-01-10C			12159835.9	3500639.1	32.7	0.4	-32.3	<u>'</u>	<del></del>	<u> </u>	<u> </u>	, ,,	
LW03-SD539	LW03-SD539-02-10C			12159851.4	3500679.2	21.1	0.4	-20.7		†	<u> </u>			
	LW03-SD539-03-10C			12159878.3	3500619.8	32.2	5.1	20.7	l	1	1			

TABLE 2
Sample Summary
Benthic Invertebrate Evaluation
SWMU 3 - Pier 10 Sandblast Yard
JEB Little Creek, Virginia Beach, Virginia

										•	Analy	ses		
Station ID	Sample ID <sup>1,2</sup>	Sample Collection Date	Sample Collection Time	Easting (X)	Northing (Y)	Water Depth (feet)	Water Elevation (feet NAVD88)	Sediment Surface Elevation (feet NAVD88)	SWMU 3 COCs <sup>3</sup> (SW- 846 6010B/SOP105 and SW-846 7471A/SOP104)	pH (SW-846 9045C/ SOP187)	TOC (Lloyd Kahn/ SOP 221)	AVS/SEM (EPA 821-R-91- 100/AVS/SEM)	Grainsize (ASTM D422)	Benthic Invertebrates
	LW03-SD540-00-10C	9/1/2010	15:50	40450040.0	0500740.7	47.0	1.0	40.0	Х	Х	Х	Х	Χ	X
	LW03-SD540P-00-10C	9/1/2010	15:55	12159849.0	3500749.7	17.2	-1.2	-18.3	Х					 I
LW03-SD540	LW03-SD540-01-10C			12159852.3	3500720.1	19.6	1.4	-18.2						 i
	LW03-SD540-02-10C			12159879.8	3500780.5	19.5	1.4	-18.1						 I
	LW03-SD540-03-10C			12159821.6	3500778.0	18.1	1.4	-16.7						
	LW03-SD541-00-10C	9/7/2010	12:55	12159850.4	3500846.1	12.3	-1.5	-13.8	Х	Х	Х	Χ	Χ	)
LW02 CDF41	LW03-SD541-01-10C			12159867.4	3500873.7	11.1	-1.5	-12.6						
LW03-SD541	LW03-SD541-02-10C			12159822.0	3500821.2	13.0	-1.5	-14.5						i
	LW03-SD541-03-10C			12159878.5	3500820.8	16.3	-1.5	-17.8						
	LW03-SD543-00-10C	9/1/2010	14:30	12159951.8	3500449.6	19.8	-0.7	-20.5	Х	Χ	Χ	Χ	Χ	
LW02 CDE42	LW03-SD543-01-10C			12159950.4	3500420.9	21.0	1.7	-19.3						
LW03-SD543	LW03-SD543-02-10C			12159921.9	3500478.5	25.2	1.7	-23.5						i
	LW03-SD543-03-10C			12159979.4	3500478.2	28.1	1.7	-26.4						i
	LW03-SD544-00-10C	9/1/2010	13:55	12159954.4	3500548.3	34.3	-0.8	-35.1	Х	Х	Х	Х	Χ	
114/02 CDE 44	LW03-SD544-01-10C			12159950.8	3500578.6	34.6	1.7	-32.8						i
LW03-SD544	LW03-SD544-02-10C			12159979.4	3500520.8	33.8	1.7	-32.0						i
	LW03-SD544-03-10C			12159921.0	3500520.0	33.8	1.7	-32.0						i
	LW03-SD545-00-10C	9/1/2010	13:15	12159950.4	3500650.7	19.3	-1.1	-20.3	Х	Х	Х	Х	Χ	
1.1400 ODE 45	LW03-SD545-01-10C			12159949.2	3500621.3	26.9	1.6	-25.3						i
LW03-SD545	LW03-SD545-02-10C			12159921.1	3500679.3	20.8	1.6	-19.2						i
	LW03-SD545-03-10C			12159979.6	3500679.1	20.9	1.6	-19.3						i
	LW03-SD546-00-10C	9/1/2010	16:25	12159950.3	3500749.3	18.8	-1.3	-20.1	Х	Х	Х	Х	Χ	
	LW03-SD546-01-10C			12159922.1	3500720.3	20.9	1.2	-19.7						 i
LW03-SD546	LW03-SD546-02-10C			12159978.9	3500722.2	21.1	1.2	-19.9						 i
	LW03-SD546-03-10C			12159950.9	3500780.4	20.6	1.2	-19.4						 i
	LW03-SD547-00-10C	9/7/2010	13:40	40450054.0	0500040.0				Х	Х	Х	Х	Χ	
	LW03-SD547P-00-10C	9/7/2010	13:45	12159951.0	3500849.9	17.8	-1.9	-19.6	Х					i
LW03-SD547	LW03-SD547-01-10C			12159922.2	3500879.2	14.4	-1.9	-16.3						i
	LW03-SD547-02-10C			12159978.8	3500879.3	14.6	-1.9	-16.4						i
	LW03-SD547-03-10C			12159950.8	3500819.7	18.2	-1.9	-20.0		1				i
	LW03-SD548-00-10C	9/9/2010	12:10	12160050.9	3500349.7	23.1	0.7	-22.4	Х	Х	Х	Х	Χ	
11402 05542	LW03-SD548-01-10C			12160049.6	3500320.9	22.8	0.7	-22.2		1				i
LW03-SD548	LW03-SD548-02-10C			12160021.9	3500378.4	21.8	0.7	-21.1		1		1		i
	LW03-SD548-03-10C			12160079.3	3500379.3	21.9	0.7	-21.2		1				i
	LW03-SD549-00-10C	9/9/2010	12:55	12160050.2	3500449.8	21.1	0.0	-21.1	Х	Х	Х	Х	Χ	
11400 005:5	LW03-SD549-01-10C			12160021.8	3500420.9	21.3	0.0	-21.2		1				i
LW03-SD549	LW03-SD549-02-10C			12160079.6	3500420.1	20.8	0.0	-20.8						i
	LW03-SD549-03-10C			12160050.6	3500479.1	20.6	0.0	-20.6	1	1				i

TABLE 2
Sample Summary
Benthic Invertebrate Evaluation
SWMU 3 - Pier 10 Sandblast Yard
JEB Little Creek, Virginia Beach, Virginia

											Analy.	ses		
Station ID	Sample ID <sup>1,2</sup>	Sample Collection Date	Sample Collection Time	Easting (X)	Northing (Y)	Water Depth (feet)	Water Elevation (feet NAVD88)	Sediment Surface Elevation (feet NAVD88)	SWMU 3 COCs <sup>3</sup> (SW- 846 6010B/SOP105 and SW-846 7471A/SOP104)	pH (SW-846 9045C/ SOP187)	TOC (Lloyd Kahn/ SOP 221)	AVS/SEM (EPA 821-R-91- 100/AVS/SEM)	Grainsize (ASTM D422)	Benthic Invertebrates
	LW03-SD550-00-10C	9/8/2010	12:40	12160048.7	3500550.1	23.3	-1.3	-24.6	Х	Х	Х	Х	Х	
	LW03-SD550-01-10C	9/8/2010	12:40	12160021.1	3500578.5	27.8	-1.3	-29.1						>
LW03-SD550	LW03-SD550-02-10C	9/8/2010	12:40	12160079.7	3500578.4	19.1	-1.3	-20.4						
	LW03-SD550-03-10C	9/8/2010	12:40	12160051.1	3500520.5	19.9	-1.3	-21.2						
	LW03-SD551-00-10C	9/8/2010	10:30	12160048.2	3500649.7	20.6	0.4	-20.1	Х	Х	Х	Х	Х	
	LW03-SD551-01-10C			12160050.2	3500678.2	22.8	0.4	-22.4		Α	Λ.	Α.		
LW03-SD551	LW03-SD551-02-10C			12160078.0	3500621.6	21.0	0.4	-20.6						
	LW03-SD551-03-10C			12160021.9	3500620.2	20.8	0.4	-20.3						
	LW03-SD557-00-10C	9/7/2010	16:25	12160050.3	3500749.6	20.3	-0.9	-21.1	Х	Х	Х	Х	Х	
	LW03-SD552-01-10C	7/1/2010		12160030.3	3500747.3	20.1	-0.9	-21.0	Λ			Λ		1
_W03-SD552	LW03-SD552-02-10C			12160079.6	3500779.1	20.8	-0.7	-21.6						1
	LW03-SD552-03-10C			12160049.3	3500777.1	20.8	-0.9	-21.7						
	LW03-SD553-00-10C	9/7/2010	14:30	12160050.4	3500850.6	13.7	-1.9	-15.6	Х	Х	Х	Х	Х	1
	LW03-SD553-01-10C	7/1/2010		12160048.1	3500863.6	13.7	-1.9	-15.1	Λ			Λ		
-W03-SD553	LW03-SD553-02-10C			12160022.9	3500821.8	18.3	-1.9	-20.2						1
	LW03-SD553-03-10C			12160078.6	3500821.6	16.4	-1.9	-18.3						1
	LW03-SD555-00-10C	9/9/2010	13:30	12160150.3	3500449.4	20.6	-0.5	-21.1	Х	Х	Х	Х	Х	
	LW03-SD555-01-10C		15.50	12160150.7	3500447.4	21.8	-0.5	-22.3	Λ			Λ		1
-W03-SD555	LW03-SD555-02-10C			12160178.6	3500479.1	20.6	-0.5	-21.1						1
	LW03-SD555-03-10C			12160176.5	3500477.1	19.8	-0.5	-20.3						1
	LW03-SD556-00-10C	9/8/2010	13:40	12100122.0	3000170.1	17.0	-0.3	-20.3	Х	Х	Х	Х	Х	<del>                                     </del>
	LW03-SD556P-00-10C	9/8/2010	13:45	12160151.9	3500549.8	19.5	-2.0	-21.5	X			Λ		1
-W03-SD556	LW03-SD556-01-10C	7/0/2010		12160149.6	3500578.0	19.4	-2.0	-21.4	^					
	LW03-SD556-02-10C			12160121.7	3500521.8	17.7	-2.0	-19.7						
	LW03-SD556-03-10C			12160179.5	3500521.0	19.6	-2.0	-21.6						1
	LW03-SD557-00-10C	9/8/2010	11:15	12160150.2	3500651.0	21.6	0.0	-21.6	Х	Х	Х	Х	X	<del>                                     </del>
	LW03-SD557-01-10C			12160179.0	3500678.6	22.4	0.0	-22.4				Α		
_W03-SD557	LW03-SD557-02-10C			12160123.6	3500678.5	22.2	0.0	-22.2						
	LW03-SD557-03-10C			12160148.3	3500620.6	21.0	0.0	-21.0						
	LW03-SD558-00-10C	9/8/2010	8:25	12160148.9	3500749.8	24.3	0.6	-23.6	Х	Х	Х	Х	Х	$\vdash$
	LW03-SD558-01-10C	9/8/2010	8:25	12160150.1	3500747.0	23.6	0.6	-22.9	^			^		
-W03-SD558	LW03-SD558-02-10C	9/8/2010	8:25	12160178.4	3500777.2	24.5	0.6	-23.9					<b> </b>	
	LW03-SD558-03-10C	9/8/2010	8:25	12160176.4	3500721.3	23.6	0.6	-23.9						
	LW03-SD559-00-10C	9/7/2010	15:30	12160149.3	3500849.7	11.2	-1.4	-12.6	X	Х	Х	Х	Х	$\vdash$
	LW03-SD559-01-10C		15.50	12160141.6	3500876.3	13.3	-1.4	-14.7	^	^	^	^	^	
_W03-SD559	LW03-SD559-02-10C			12160178.5	3500878.3	20.3	-1.4	-14.7			1			1
	LW03-SD559-03-10C			12160149.4	3500878.3	20.3	-1.4	-21.5		1	1		<u> </u>	

											Analy.	ses		
Station ID	Sample ID <sup>1,2</sup>	Sample Collection Date	Sample Collection Time	Easting (X)	Northing (Y)	Water Depth (feet)	Water Elevation (feet NAVD88)	Sediment Surface Elevation (feet NAVD88)	SWMU 3 COCs³ (SW- 846 6010B/SOP105 and SW-846 7471A/SOP104)	pH (SW-846 9045C/ SOP187)	TOC (Lloyd Kahn/ SOP 221)	AVS/SEM (EPA 821-R-91- 100/AVS/SEM)	Grainsize (ASTM D422)	Benthic Invertebrates (SOP IZ-06)
	LW03-SD562-00-10C	9/8/2010	14:30	12160251.4	3500551.1	20.1	-2.3	-22.4	Χ	Χ	Χ	Χ	Χ	Х
LW03-SD562	LW03-SD562-01-10C			12160279.0	3500579.4	20.2	-2.3	-22.5						ı
LW03-3D302	LW03-SD562-02-10C			12160219.7	3500579.5	19.7	-2.3	-22.0						1
	LW03-SD562-03-10C			12160250.6	3500521.8	20.3	-2.3	-22.6						1
	LW03-SD563-00-10C	9/8/2010	11:55	12160248.8	3500650.3	21.2	-1.4	-22.6	Х	Х	Χ	Χ	Χ	Χ
LW03-SD563	LW03-SD563-01-10C			12160249.2	3500680.4	21.5	-1.4	-22.9						1
LW03-3D303	LW03-SD563-02-10C			12160278.5	3500620.3	21.6	-1.4	-23.0						· · · · · · · · · · · · · · · · · · ·
	LW03-SD563-03-10C			12160221.8	3500620.4	21.4	-1.4	-22.9						1
	LW03-SD564-00-10C	9/8/2010	9:15	12160250.8	3500749.8	23.6	0.8	-22.8	Х	Χ	Χ	Χ	Χ	X
LW03-SD564	LW03-SD564-01-10C			12160220.9	3500779.3	23.8	0.8	-23.1						1
LW03-3D304	LW03-SD564-02-10C			12160277.6	3500780.3	23.2	0.8	-22.4						1
	LW03-SD564-03-10C			12160249.4	3500721.8	23.6	0.8	-22.8						1
	LW03-SD567-00-10C	9/8/2010	15:10	12160349.8	3500550.4	20.3	-2.4	-22.7	Х	Х	Χ	Χ	Χ	Χ
LW03-SD567	LW03-SD567-01-10C			12160349.9	3500579.9	20.5	-2.4	-22.9						1
LW03-3D307	LW03-SD567-02-10C			12160321.1	3500521.8	21.4	-2.4	-23.8						1
	LW03-SD567-03-10C	-		12160378.0	3500521.5	20.7	-2.4	-23.0						1
	LW03-SD571-00-10C	9/8/2010	15:55	12160449.5	3500550.8	20.3	-2.2	-22.5	Х	Х	Χ	Χ	Χ	Χ
LW03-SD571	LW03-SD571-01-10C			12160422.2	3500579.5	20.4	-2.2	-22.6						<u> </u>
LWU3-3D3/1	LW03-SD571-02-10C			12160478.6	3500579.0	20.4	-2.2	-22.6						i
	LW03-SD571-03-10C			12160449.3	3500520.5	21.2	-2.2	-23.4						<u></u>
	LW03-SD574-00-10C	8/31/2010	9:38	12159448.6	3499950.1	19.9	1.4	-18.5	Х	Х	Х	Х	Χ	Х
LW03-SD574	LW03-SD574-01-10C			12159422.3	3499978.3	17.2	-0.6	-17.8						1
LVVU3-3D3/4	LW03-SD574-02-10C			12159448.9	3499922.2	18.1	-0.6	-18.7						i
	LW03-SD574-03-10C			12159478.1	3499979.3	18.5	-0.6	-19.1						1

#### Notes:

<sup>1.</sup> *Bold, italic* font indicates sample IDs for physical and/or chemical analyses. Sample IDs shown in plain font identify locations where grabs were collected for composition.

<sup>2.</sup> Water quality parameters were collected from the mid-point of each grid. The sample ID used for the composite samples is associated with the center of the each sampling grid.

<sup>3.</sup> SWMU 3 COCs are copper, lead, nickel, tin, and zinc.

TABLE 3 Surface Water Quality Field Parameters Benthic Invertebrate Evaluation SWMU 3 - Pier 10 Sandblast Yard JEB Little Creek, Virginia Beach, Virginia

Station ID		LW03-SD501			LW03-SD502			LW03-SD503			LW03-SD504	A		LW03-SD504			LW03-SD505	,
Sample Depth (feet below water surface)	0.88	2.3	4.3	0.8	4.7	7.7	0.6	1.6	3.7	0.9	6.3	11.5	0.9	9.4	16.3	0.5	6.5	13.4
Sample Date		9/2/2010			9/2/2010			9/2/2010			8/31/2010			8/31/2010			8/31/2010	
Field Parameters																		
ABM (% in composite sediment sample)	0.1			0.2			0.1			0.5			0.25			1		
Average Redox (depth in mm below sediment surface)*	1			1			1.2			NV			1.1			4.75		
Dissolved Oxygen (mg/L)	6.52	5.9	5.78	7.04	5.43	4.48	7.11	5.75	4.54	6.3	5.84	4.35	6.65	5.66	0.78	6.89	5.97	5.09
Oxidation Reduction Potential (mV)	-27.9	-15.2	-9.5	66.7	69.5	69.4	79.8	81.3	80.4	155.2	158.6	163.4	75.7	78.1	-102.9	23.8	35.3	37
pH (ph)	7.88	7.84	7.85	7.91	7.83	7.75	7.92	7.82	7.76	7.85	7.84	7.77	7.89	7.81	7.73	7.89	7.86	7.81
Salinity (ppt)	20.65	24.92	25.1	24.61	25.3	25.42	22.85	24.86	25.13	24.73	25.2	25.63	24.33	25.49	25.7	22.48	25.25	25.71
Specific Conductivity (ms/cm)	37.15	38.29	39.48	38.25	39.74	40.02	36.06	39.11	39.5	39.01	39.61	40.18	38.66	40.02	40.28	36.67	39.61	40.31
Temperature (°C)	26.21	26.6	26.55	26.51	26.38	26.23	26.56	26.75	26.64	26.56	26.4	26.13	26.1	26.19	26.08	25.84	26.41	26.09
Turbidity (NTU)	2.3	2.4	4.6	3.2	3.5	7.3	2.9	3.8	5.7	1.8	3.1	9.7	2.7	3.3	8.8	2.8	2.3	4.6

Station ID		LW03-SD506			LW03-SD507			LW03-SD508			LW03-SD509			LW03-SD510			LW03-SD511	
Sample Depth (feet)	1	6.7	12.6	0.6	4.8	7.8	0.9	3.1	5	0.5	2.5	4.6	1.1	8.7	18.1	0.7	8.4	19.8
Sample Date		9/10/2010			9/2/2010	•		9/10/2010			9/9/2010	•		8/31/2010	•		8/31/2010	
Field Parameters																		
ABM (% in composite sediment sample)	2			0.05			0.5			20			0.5			0.8		
Average Redox (depth in mm below sediment surface)*	8.1			0.87			2.6			0.5			7.3			5.9		
Dissolved Oxygen (mg/L)	6.15	5.59	5.34	6.78	5.51	4.51	7.58	6.68	6.56	4.63	4.66	4.55	6.73	5.77	4.19	6.67	5.43	5.03
Oxidation Reduction Potential (mV)	150.9	151.1	150.8	83.4	84.4	84.3	141.5	142.6	103.1	138.8	137.4	136.3	66.8	71	72.7	44.6	46.4	47.6
pH (ph)	7.83	7.81	7.81	7.89	7.82	7.75	7.93	7.89	7.89	7.73	7.78	7.79	7.9	7.85	7.74	7.89	7.82	7.81
Salinity (ppt)	22.64	24.29	24.27	24.46	25.22	25.43	21.58	23.32	23.74	21.44	22.25	22.29	24.72	25.41	25.8	25	25.48	25.73
Specific Conductivity (ms/cm)	35.69	38.3	38.25	38.46	39.61	39.9	34.27	37.02	37.5	39.17	35.33	35.42	38.96	39.82	40.42	39.4	40.02	40.31
Temperature (°C)	25.12	25.75	25.56	26.65	26.38	26.3	25.69	25.97	26.02	25.37	25.85	25.86	26.52	26.32	26.06	26.51	26.22	26.09
Turbidity (NTU)	1.9	4.9	6.5	3.3	4.1	6	2.9	3	NA	3.1	2.5	5.6	2.2	2.1	7.5	2.2	2.5	4.6

Station ID		LW03-SD512			LW03-SD513			LW03-SD514			LW03-SD515			LW03-SD516			LW03-SD517	
Sample Depth (feet)	1.1	7.9	13.3	1.1	8.1	13.8	0.9	5.6	9.7	0.8	4.4	8.7	0.9	2.5	3.3	1.2	10.5	18.6
Sample Date		9/2/2010			9/10/2010			9/10/2010			9/9/2010			9/9/2010			8/31/2010	
Field Parameters																		
ABM (% in composite sediment sample)	0.3			1.5			1.2			5			50			0.25		
Average Redox (depth in mm below sediment surface)*	0.8			0.5			0.5			7.3			NV			2		
Dissolved Oxygen (mg/L)	7.46	5.82	5.25	6.34	5.8	4.9	7.24	6.82	5.02	6.15	5.34	5.15	5.56	5.07	4.51	6.53	6.02	3.07
Oxidation Reduction Potential (mV)	61.3	63.4	64.1	152.9	153.5	151.5	124.1	124.8	124.4	114.8	116.4	116.2	146.4	146.8	145.9	62.8	71.1	51.4
pH (ph)	7.94	7.86	7.82	7.85	7.82	7.78	7.87	7.89	7.75	7.88	7.84	7.84	7.77	7.76	7.76	7.87	7.85	7.67
Salinity (ppt)	24	25.53	25.63	22.84	24.27	24.3	22.05	24.04	24.28	19.87	22.15	22.22	19.58	21.42	21.89	24.34	25.61	25.9
Specific Conductivity (ms/cm)	37.73	40.08	40.18	36.24	38.24	38.28	34.75	37.93	38.24	31.52	35.23	35.33	31.81	34.21	34.67	38.33	40.15	40.56
Temperature (°C)	26.56	26.17	26.11	25.26	25.56	25.47	25.81	26.15	25.54	26.24	26.01	25.84	23.87	25.01	25.53	26.54	26.17	26.01
Turbidity (NTU)	2	2	3	1.8	4	15.8	2.8	1.8	7.9	3.6	4.7	6.3	2.2	2.2	3	2.4	2.4	11.1

TABLE 3
Surface Water Quality Field Parameters
Benthic Invertebrate Evaluation
SWMU 3 - Pier 10 Sandblast Yard
JEB Little Creek, Virginia Beach, Virginia

Station ID		LW03-SD518			LW03-SD519			LW03-SD520			LW03-SD521			LW03-SD522			LW03-SD523	,
Sample Depth (feet)	0.7	10.9	19.2	6	9.9	17.3	0.5	7.8	14.7	0.9	6.3	14.8	0.5	4.3	8.8	0.9	3.6	6
Sample Date		8/31/2010			9/2/2010			9/10/2010			9/12/2010			9/9/2010	•		9/9/2010	
Field Parameters																		
ABM (% in composite sediment sample)	0.2			0.4			1.5			50			9			35		
Average Redox (depth in mm below sediment surface)*	3.8			0.75			0.5			NV			5.3			0.5		
Dissolved Oxygen (mg/L)	6.95	5.67	4.41	7.19	5.77	4.96	4.94	5.79	4.86	4.63	5.84	5.32	6.23	5.8	5.13	5.09	5.14	5.13
Oxidation Reduction Potential (mV)	53	57	-27.4	52.4	55.1	55.7	180	170.4	164.8	159.6	159.5	156.1	117.1	118.7	118.9	125.6	124.8	124.9
pH (ph)	7.9	7.85	7.76	7.94	7.85	7.8	7.83	7.83	7.75	7.71	7.83	7.76	7.9	7.87	7.84	7.82	7.84	7.85
Salinity (ppt)	24.3	25.65	25.76	24.31	25.55	25.66	21.66	24.29	24.32	22.59	22.96	23.02	21.43	22.08	22.22	22.11	22.23	22.24
Specific Conductivity (ms/cm)	38.26	40.21	40.36	38.76	40.08	40.24	34.47	38.28	38.31	35.89	36.36	36.45	34.11	35.12	35.33	35.22	35.36	35.34
Temperature (°C)	26.56	26.13	26.07	26.58	26.17	26.09	25.09	25.81	25.43	25.14	24.91	25.02	26.31	25.93	25.8	25.83	25.86	25.74
Turbidity (NTU)	2.4	2.3	17.7	2.3	2.2	9.8	2.3	2.9	10	1.6	1.5	3.8	3.5	2.4	8.7	2.4	2.8	4.5

Station ID		LW03-SD525			LW03-SD526			LW03-SD527			LW03-SD528			LW03-SD529			LW03-SD530	j
Sample Depth (feet)	1.2	9.2	19	0.7	9.2	16.6	0.8	5.7	12.9	0.6	6.7	12.3	0.9	4.3	8.5	0.7	10.7	20.3
Sample Date		9/2/2010			9/10/2010			9/12/2010			9/9/2010			9/9/2010			9/2/2010	
Field Parameters																		
ABM (% in composite sediment sample)	0.6			0.01			50			NA			15			0.6		
Average Redox (depth in mm below sediment surface)*	NV			NV			1.5			1.5			1.1			NV		
Dissolved Oxygen (mg/L)	7.17	5.75	4.72	7.18	5.67	4.07	5.47	6.03	5.62	6.37	5.96	4.93	5.44	5.28	5.14	6.77	5.83	3.78
Oxidation Reduction Potential (mV)	42.2	45.1	42.5	155.4	156.4	69.3	177.6	177.2	176.9	122.7	122.7	120.5	125.2	125.1	125	13.3	18.9	20
pH (ph)	7.96	7.85	7.78	7.9	7.83	7.74	7.76	7.83	7.79	7.89	7.88	7.81	7.85	7.85	7.84	7.89	7.86	7.76
Salinity (ppt)	24.18	25.55	25.72	22.5	24.29	24.31	22.74	22.9	23.01	21.48	22.15	22.24	22.22	22.24	22.24	24.36	25.55	25.83
Specific Conductivity (ms/cm)	38.36	40.07	40.31	35.48	38.28	38.3	36.15	36.34	36.43	34.1	35.22	35.35	35.32	35.34	35.35	38.83	40.07	40.4
Temperature (°C)	26.53	26.18	26.07	25.24	25.78	27.73	25	24.93	25.01	26.31	25.96	25.77	25.83	25.73	25.68	26.56	26.16	26.04
Turbidity (NTU)	2.5	2	10.3	2.3	3.3	11.8	1.4	1.6	1.9	2.3	2.7	11	2.2	3.1	4.7	2.1	2.2	5.9

Station ID		LW03-SD533			LW03-SD534			LW03-SD535			LW03-SD537			LW03-SD538			LW03-SD539	,
Sample Depth (feet)	0.9	10.8	18.1	1.2	15.5	29.7	0.7	7.3	12.3	1.1	9.5	17.4	0.6	15.4	26.2	0.5	15.1	29.3
Sample Date		9/1/2010			9/1/2010			9/1/2010			9/1/2010			9/1/2010			9/1/2010	
Field Parameters																		
ABM (% in composite sediment sample)	5			4			90			3			1			0.5		
Average Redox (depth in mm below sediment surface)*	2.5			NV			NV			7			NV			1.5		
Dissolved Oxygen (mg/L)	6.89	6.2	3.62	6.57	5.4	0.54	5.99	5.9	4.64	7.26	6.14	4.82	7.12	5.59	0.77	7.15	4.54	0.54
Oxidation Reduction Potential (mV)	-40.3	-29.5	-29.8	94.1	94.7	-154.8	-19	-10	-7.3	-50.7	-33.5	-26.8	-7.3	-1.8	-134	18.5	21.5	-174.9
pH (ph)	7.9	7.89	7.7	7.9	7.83	6.83	7.82	7.86	7.78	7.94	7.87	7.8	7.93	7.84	7.25	7.93	7.77	7.16
Salinity (ppt)	24.73	25.36	25.68	25.21	25.59	26.47	39.03	25.18	25.37	24.78	25.42	25.59	24.96	25.5	26.32	24.84	25.42	26.37
Specific Conductivity (ms/cm)	39.13	39.81	40.2	39.62	40.16	41.32	38.7	39.58	39.82	38.5	39.89	40.13	39.23	40.01	41.16	39.08	39.9	41.22
Temperature (°C)	26.81	26.14	26.13	26.47	26.16	25.62	27.32	26.42	26.2	26.87	26.19	26.11	26.64	26.15	25.94	27.05	26.17	25.54
Turbidity (NTU)	2.4	2.5	7.4	2.2	3.2	50	2.8	2.8	4.7	2.1	1.9	7.8	2.4	2.7	8.5	2	4.3	28

TABLE 3
Surface Water Quality Field Parameters
Benthic Invertebrate Evaluation
SWMU 3 - Pier 10 Sandblast Yard
JEB Little Creek, Virginia Beach, Virginia

Station ID		LW03-SD540			LW03-SD541			LW03-SD543			LW03-SD544			LW03-SD545			LW03-SD546	,
Sample Depth (feet)	0.6	8.1	16.2	1.1	6.8	10.7	0.5	10.8	19.1	0.8	17.1	31.4	1.1	10.8	18.9	1.6	9.5	18.1
Sample Date		9/1/2010			9/7/2010			9/1/2010			9/1/2010			9/1/2010			9/1/2010	
Field Parameters																		
ABM (% in composite sediment sample)	4			15			1.5			0.5			2			3		
Average Redox (depth in mm below sediment surface)*	NV			NV			NV			NV			NV			NV		
Dissolved Oxygen (mg/L)	7.5	6.72	4.03	7.55	6.33	5.8	7.52	5.99	3.4	7.39	4.96	0.63	7.29	6.17	2.9	7.48	6.77	3.07
Oxidation Reduction Potential (mV)	-59.8	-48	-43.1	-9.4	-5	-33.4	-4.6	4.3	6.1	15.6	14.5	-189.2	11.5	14.7	7.3	8.9	12	-75
pH (ph)	7.97	7.92	7.73	7.96	7.9	7.85	7.96	7.86	7.68	7.95	7.8	6.97	7.9	7.86	7.63	7.97	7.93	7.72
Salinity (ppt)	25.03	25.21	25.49	24.95	25.15	25.26	23.57	25.42	25.72	24.58	25.66	26.49	24.64	25.28	25.66	25.05	25.18	25.5
Specific Conductivity (ms/cm)	39.28	39.59	40.01	39.24	39.5	39.66	36.76	39.91	40.45	39.03	40.18	41.39	39.04	39.71	40.26	39.39	39.55	40.01
Temperature (°C)	26.72	26.27	26.11	26.79	26.51	26.29	26.93	26.17	26.05	27.07	26.1	25.04	27.21	26.21	26.03	26.46	26.36	26.06
Turbidity (NTU)	2.4	2.1	6.6	1.8	1.6	7	2.4	2.4	5.2	2.5	5.7	14.5	1.8	1.9	8.3	2	2	8.2

Station ID		LW03-SD547			LW03-SD548			LW03-SD549			LW03-SD550			LW03-SD551			LW03-SD552	
Sample Depth (feet)	1.1	8.9	15.9	0.5	12.6	21.6	1.1	10.3	20.5	0.6	10.9	18.6	0.7	9.8	18.5	0.7	10.5	17.5
Sample Date		9/7/2010			9/9/2010			9/9/2010			9/8/2010			9/8/2010			9/7/2010	
Field Parameters																		
ABM (% in composite sediment sample)	22			0			0.01			NA			0.3			0.03		
Average Redox (depth in mm below sediment surface)*	NV			NV			NV			NV			1			NV		
Dissolved Oxygen (mg/L)	7.58	6.34	4.29	6.28	5.61	5.32	6.13	5.62	5.12	5.33	4.44	4.09	5.64	4.9	5.15	8.27	6.8	4.79
Oxidation Reduction Potential (mV)	62.5	63.1	44.8	130.3	126.1	162.1	120.3	120.4	60.3	105.1	105.2	87.9	112.4	112.9	112.8	98.8	100.3	89.9
pH (ph)	7.95	7.88	7.75	7.84	7.86	7.91	7.86	7.86	7.87	7.82	7.79	7.74	7.85	7.82	7.87	8.01	7.93	7.81
Salinity (ppt)	24.68	25.16	25.41	21.38	22.32	22.32	21.58	22.21	22.36	23.73	23.93	23.92	23.45	23.82	23.87	23.47	25.14	25.33
Specific Conductivity (ms/cm)	38.48	39.54	39.87	32.03	35.42	35.42	34.37	35.3	35.35	37.46	37.77	37.75	36.87	37.61	37.69	37.9	39.49	39.74
Temperature (°C)	27.13	26.34	26.17	25.13	25.63	25.44	25.9	25.7	25.5	26.37	26.18	25.88	NA	NA	NA	27.33	26.37	26.2
Turbidity (NTU)	2	2	92	3.2	5.2	5.2	1.6	2	33	2.7	2.9	6.4	2.9	2.6	10.2	2.7	2.1	3.1

Station ID		LW03-SD553			LW03-SD555			LW03-SD556			LW03-SD557			LW03-SD558			LW03-SD559	,
Sample Depth (feet)	1	6.6	13.2	0.9	9.5	NA	0.5	9.7	18.7	0.8	11.1	NA	0.7	12.9	22.4	0.8	6	11.3
Sample Date		9/7/2010			9/9/2010			9/8/2010			9/8/2010			9/8/2010			9/7/2010	
Field Parameters																		
ABM (% in composite sediment sample)	30			0.001			0.02			0.03			0.4			18		
Average Redox (depth in mm below sediment surface)*	NV																	
Dissolved Oxygen (mg/L)	7.54	7.11	5.88	5.56	5.83	5.55	5.55	5.45	1.76	5.1	5.02	4.7	5.61	5.07	3.56	7.02	7.03	6.35
Oxidation Reduction Potential (mV)	80.4	81	81.2	111.2	111.1	85	112.2	112.2	110	119.4	118.5	102.6	135.2	134.8	132.4	95.1	95.5	95.8
pH (ph)	7.94	7.93	7.85	7.87	7.88	7.89	7.84	7.88	7.8	7.9	7.83	7.86	7.83	7.83	7.72	7.94	7.9	7.9
Salinity (ppt)	24.33	25.06	25.22	21.1	22.18	22.36	23.35	23.76	23.9	23.68	23.83	23.89	22.86	23.85	23.99	24.23	24.98	25.09
Specific Conductivity (ms/cm)	38.62	39.39	39.63	33.48	35.27	35.46	36.81	37.59	37.73	37.24	37.64	37.68	36.33	37.66	37.86	38.53	39.25	39.41
Temperature (°C)	26.84	26.48	26.25	25.93	25.83	19.7	26.46	25.95	25.83	26.31	26.09	20.5	25.63	26.2	26.07	26.84	26.37	26.29
Turbidity (NTU)	2.7	3.1	2.8	2.3	1.6	4.9	2.8	2	7.7	9	2.7	10.1	1.6	2	8.6	1.9	1.9	1.7

Station ID		LW03-SD562			LW03-SD563			LW03-SD564			LW03-SD567			LW03-SD571			LW03-SD574	
Sample Depth (feet)	0.5	10.6	18.7	1.3	10.1	20.5	0.6	11.5	22.5	1.1	10.6	18.7	1.2	11.5	18.5	0.94	10.5	17.2
Sample Date		9/8/2010			9/8/2010			9/8/2010			9/8/2010			9/8/2010			8/31/2010	
Field Parameters																		
ABM (% in composite sediment sample)	0.01			0.02			0.05			0.02			0.05			0.25		
Average Redox (depth in mm below sediment surface)*	NV			1			NV			0.5			NV			1.5		
Dissolved Oxygen (mg/L)	5.45	5.19	4.07	4.99	5.06	2.6	5.48	4.61	2.2	5.6	5.61	4.16	5.65	5.3	2.31	6.55	5.45	3.54
Oxidation Reduction Potential (mV)	111.6	112	37.4	116.6	116.1	45.4	119.5	119.9	15	102.6	103.7	83	110.4	111	66.5	151.2	150.6	41.6
pH (ph)	7.85	7.86	7.79	7.84	7.83	7.84	7.83	7.8	7.78	7.88	7.89	7.8	7.88	7.88	7.79	7.87	7.84	7.68
Salinity (ppt)	23.74	23.85	23.88	23.67	23.85	23.87	23.45	23.81	23.95	23.66	23.73	23.87	23.59	23.8	23.88	24.71	25.61	25.91
Specific Conductivity (ms/cm)	37.48	37.62	37.71	37.37	37.65	37.67	36.92	37.6	37.82	37.31	37.58	37.67	37.4	37.61	37.7	38.4	40.15	40.55
Temperature (°C)	26.23	25.92	25.81	26.13	26.03	25.83	26.09	26.09	26.03	26.35	25.84	25.83	26.26	25.84	25.72	26.61	26.14	26.02
Turbidity (NTU)	3.1	2.6	9.7	2.3	2.3	9.4	2.19	3.7	6.6	3.3	2.3	5	2.2	2.7	NA	2	3	4.9

#### Notes:

\* Average redox boundary calculated from depth of redox boundary observed in associated grab sample

°C - degrees Celsius

mg/L - milligram per liter

mm - millimeter

ms/cm - milliseimens per centimeter

mV - millivolts

NTU - nephelometric turbidity units

NV - not visible

pH - pH units

ppt - parts per thousand

TABLE 4
Surface Sediment Screening
Benthic Invertebrate Evaluation
SWMU 3 Pier 10 Sandblast Yard
JEB Little Creek, Virginia Beach, Virginia

Г				Percent	Copper		Lead	T	Nickel	1	Tin	<u> </u>	Zinc		Average	Fails	<u> </u>	<u> </u>	Percent	
Sample	Date	Grid	Area	ABM	(MG/KG)	RQ	(MG/KG)	RQ	(MG/KG)	RQ		RQ		RQ	RQ	RQ?	Reason for Failure	ABM > 1%?	ABM	Classification
LW03-SD538-00-10C	9/1/2010	538	Dry Dock	1.0	165	0.71	50.1	0.47	25.4	0.96	9.48	0.85	313	0.76	0.75	NO		NO		Unimpacted
LW03-SD539-00-10C	9/1/2010	539	Dry Dock	0.5	206	0.89	40.4	0.38	28.8	1.09	10.7	0.96	349	0.85	0.83	NO		NO		Unimpacted
LW03-SD544-00-10C	9/1/2010	544	Dry Dock	0.5	156	0.67	45.5	0.43	27.2	1.03	8.46	0.76	267	0.65	0.71	NO		NO		Unimpacted
LW03-SD513-00-10C	9/10/2010	513	Marina	1.5	71.7	0.31	64.6	0.60	11.5	0.43	9.33	0.83	232	0.57	0.55	NO		YES	1.50	Possibly impacted
LW03-SD514-00-10C	9/10/2010	514	Marina	1.2	241	1.04	243	2.27	22.0	0.83	18.5	1.65	473	1.15	1.39	YES	Pb, Sn, Avg	YES	1.20	Impacted
LW03-SD515-00-10C	9/9/2010	515	Marina	5.0	221	0.95	123	1.15	18.1	0.68	12.8	1.14	395	0.96	0.98	NO		YES	5.00	Possibly impacted
LW03-SD519-00-10C	9/2/2010	519	Marina	0.4	112	0.48	52.4	0.49	17.3	0.65	9.78	0.87	240	0.59	0.62	NO		NO		Unimpacted
LW03-SD520-00-10C	9/10/2010	520	Marina	1.5	385	1.66	177	1.65	29.2	1.10	19.7	1.76	602	1.47	1.53	YES	Cu, Pb, Sn, Avg	YES	1.50	Impacted
LW03-SD521-00-10C	9/12/2010	521	Marina	5.0	367	1.58	209	1.95	30.6	1.15	16.7	1.49	711	1.73	1.58	YES	Cu, Pb, Zn, Avg	YES	5.00	Impacted
LW03-SD522-00-10C	9/9/2010	522	Marina	9.0	300	1.29	317	2.96	22.6	0.85	25.8	2.30	699	1.70	1.82	YES	Pb, Sn, Zn, Avg	YES	9.00	Impacted
LW03-SD525-00-10C	9/2/2010	525	Marina	0.6	179	0.77	54.5	0.51	22.7	0.86	7.86	0.70	281	0.69	0.70	NO		NO		Unimpacted
LW03-SD526-00-10C	9/10/2010	526	Marina	0.01	214	0.92	68.2	0.64	25.8	0.97	10.1	0.90	374	0.91	0.87	NO		NO		Unimpacted
LW03-SD527-00-10C	9/12/2010	527	Marina	2.0	271	1.17	201	1.88	24.4	0.92	14.4	1.29	500	1.22	1.29	YES	Pb, Avg	YES	2.00	Impacted
LW03-SD530-00-10C	9/2/2010	530	Marina	0.6	169	0.73	53.3	0.50	33.0	1.25	9.49	0.85	291	0.71	0.81	NO		NO		Unimpacted
LW03-SD501-00-10C	9/2/2010	501	Near Shore	0.1	38.7	0.17	45.0	0.42	3.44	0.13	3.79	0.34	62.3	0.15	0.24	NO		NO		Unimpacted
LW03-SD502-00-10C	9/2/2010	502	Near Shore	0.2	30.2	0.13	16.5	0.15	16.6	0.63	5.52	0.49	100	0.24	0.33	NO		NO		Unimpacted
LW03-SD503-00-10C	9/2/2010	503	Near Shore	0.1	40.4	0.17	52.6	0.49	5.01	0.19	4.44	0.40	86.3	0.21	0.29	NO		NO		Unimpacted
LW03-SD504-00-10C	8/31/2010	504	Near Shore	0.25	107	0.46	44.5	0.42	10.8	0.41	5.50	0.49	172	0.42	0.44	NO		NO		Unimpacted
LW03-SD504A-00-10C	8/31/2010	504A	Near Shore	0.5	142	0.61	47.1	0.44	17.5	0.66	6.18	0.55	226	0.55	0.56	NO		NO		Unimpacted
LW03-SD505-00-10C	8/31/2010	505	Near Shore	1.0	74.3	0.32	46.4	0.43	12.4	0.47	13.6	1.21	160	0.39	0.57	NO		NO		Unimpacted
LW03-SD506-00-10C	9/10/2010	506	Near Shore	2.0	18.6	0.08	21.2	0.20	3.63	0.14	4.25	0.38	87.4	0.21	0.20	NO		YES	2.00	Possibly impacted
LW03-SD507-00-10C	9/2/2010	507	Near Shore	0.05	27.0	0.12	21.5	0.20	5.10	0.19	6.01	0.54	68.0	0.17	0.24	NO		NO		Unimpacted
LW03-SD508-00-10C	9/10/2010	508	Near Shore	0.5	239	1.03	180	1.68	17.1	0.65	12.3	1.10	373	0.91	1.07	YES	Pb, Avg	NO		Possibly impacted
LW03-SD509-00-10C	9/9/2010	509	Near Shore	20	168	0.72	202	1.89	13.6	0.51	12.4	1.11	239	0.58	0.96	YES	Pb	YES	20.0	Impacted
LW03-SD516-00-10C	9/9/2010	516	Near Shore	50	1,400	6.03	1,050	9.81	298	11.2	300	26.8	4,850	11.8	13.1	YES	All	YES	50.0	Impacted
LW03-SD523-00-10C	9/9/2010	523	Near Shore	35	2,450	10.6	2,020	18.9	661	24.9	561	50.1	8,990	21.9	25.3	YES	All	YES	35.0	Impacted
LW03-SD529-00-10C	9/9/2010	529	Near Shore	15	935	4.03	399	3.73	169	6.38	151	13.5	1,600	3.90	6.30	YES	All	YES	15.0	Impacted
LW03-SD534-00-10C	9/1/2010	534	Near Shore	4.0	615	2.65	538	5.03	46.3	1.75	45.4	4.05	711	1.73	3.04	YES	All	YES	4.00	Impacted
LW03-SD535-00-10C	9/1/2010	535	Near Shore	20	431	1.86	253	2.36	55.5	2.09	31.3	2.79	886	2.16	2.25	YES	All	YES	20.0	Impacted
LW03-SD541-00-10C	9/7/2010	541	Near Shore	15	460	1.98	205	1.92	56.1	2.12	38.4	3.43	1,700	4.15	2.72	YES	All	YES	15.0	Impacted
LW03-SD547-00-10C	9/7/2010	547	Near Shore	22	525	2.26	129	1.21	29.8	1.12	22.5	2.01	687	1.68	1.66	YES	Cu, Sn, Zn, Avg	YES	22.0	Impacted
LW03-SD553-00-10C	9/7/2010	553	Near Shore	30	212	0.91	69.5	0.65	26.3	0.99	14.7	1.31	469	1.14	1.00	YES	Avg	YES	30.0	Impacted
LW03-SD559-00-10C	9/7/2010	559	Near Shore	18	127	0.55	140	1.31	15.6	0.59	6.66	0.59	302	0.74	0.76	NO		YES	18.0	Possibly impacted
LW03-SD510-00-10C	8/31/2010	510	Offshore	0.5	93.6	0.40	38.5	0.36	16.6	0.63	6.05	0.54	187	0.46	0.48	NO		NO		Unimpacted
LW03-SD511-00-10C	8/31/2010	511	Offshore	0.8	97.4	0.42	66.3	0.62	18.5	0.70	14.0	1.25	248	0.60	0.72	NO		NO		Unimpacted
LW03-SD512-00-10C	9/2/2010	512	Offshore	0.3	96.3	0.42	69.0	0.64	16.5	0.62	13.3	1.19	243	0.59	0.69	NO		NO		Unimpacted
LW03-SD517-00-10C	8/31/2010	517	Offshore	0.25	245	1.06	58.1	0.54	25.7	0.97	9.08	0.81	328	0.80	0.84	NO		NO		Unimpacted
LW03-SD518-00-10C	8/31/2010	518	Offshore	0.2	173	0.75	61.9	0.58	24.1	0.91	7.50	0.67	293	0.71	0.72	NO		NO		Unimpacted
LW03-SD528-00-10C	9/9/2010	528	Offshore	No data	323	1.39	250	2.34	33.6	1.27	27.9	2.49	616	1.50	1.80	YES	Pb, Sn, Zn, Avg		No data	Impacted
LW03-SD533-00-10C	9/1/2010	533	Offshore	5.0	237	1.02	167	1.56	52.2	1.97	34.2	3.05	673	1.64	1.85	YES	All but Cu	YES	5.00	Impacted
LW03-SD537-00-10C	9/1/2010	537	Offshore	3.0	231	1.00	179	1.67	27.8	1.05	15.5	1.38	1,030	2.51	1.52	YES	Pb, Zn, Avg	YES	3.00	Impacted

TABLE 4
Surface Sediment Screening
Benthic Invertebrate Evaluation
SWMU 3 Pier 10 Sandblast Yard
JEB Little Creek, Virginia Beach, Virginia

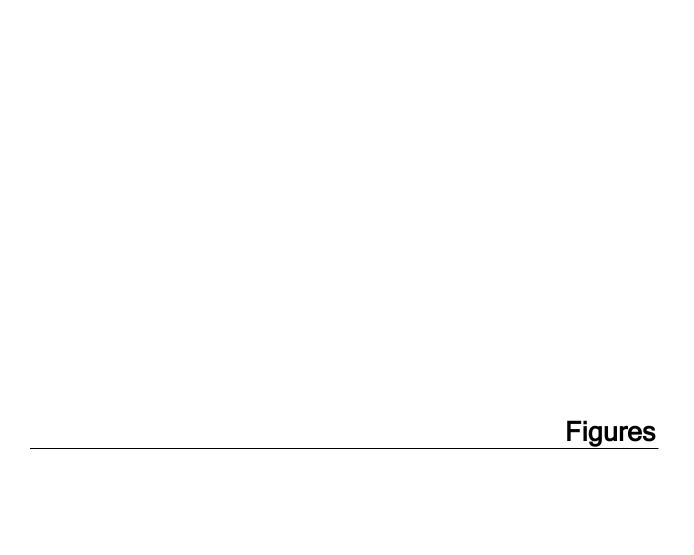
Sample	Date	Crid	Aron	Percent	Copper	DO	Lead (MC/KC)	DO.	Nickel	RO	Tin	DΟ	Zinc	RO	Average	Fails	Doccop for Egiluro	ADM > 10/2	Percent	Classification
Sample	Date	Grid	Area	ABM	(MG/KG)	KU	(MG/KG)	RQ	(MG/KG)	RU	(MG/KG)	RQ	(MG/KG)	RU	RQ	RQ?	Reason for Failure	ABM > 1%?	ABM	Classification
LW03-SD540-00-10C	9/1/2010	540	Offshore	4.0	334	1.44	238	2.22	63.0	2.38	40.0	3.57	852	2.08	2.34	YES	All but Cu	YES	4.00	Impacted
LW03-SD543-00-10C	9/1/2010	543	Offshore	1.5	151	0.65	62.3	0.58	28.0	1.06	9.35	0.83	344	0.84	0.79	NO		YES	1.50	Possibly impacted
LW03-SD545-00-10C	9/1/2010	545	Offshore	2.0	230	0.99	158	1.48	33.3	1.26	17.0	1.52	433	1.06	1.26	YES	Sn, Avg	YES	2.00	Impacted
LW03-SD546-00-10C	9/1/2010	546	Offshore	3.0	197	0.85	60.4	0.56	27.1	1.02	9.35	0.83	318	0.78	0.81	NO		YES	3.00	Possibly impacted
LW03-SD548-00-10C	9/9/2010	548	Offshore	0	161	0.69	55.1	0.51	26.9	1.02	8.31	0.74	340	0.83	0.76	NO		NO		Unimpacted
LW03-SD549-00-10C	9/9/2010	549	Offshore	0.01	218	0.94	126	1.18	36.8	1.39	22.0	1.96	595	1.45	1.38	YES	Sn, Avg	NO		Possibly impacted
LW03-SD550-00-10C	9/8/2010	550	Offshore	No data	53.1	0.23	16.4	0.15	8.72	0.33	2.89	0.26	102	0.25	0.24	NO			No data	Unimpacted
LW03-SD551-00-10C	9/8/2010	551	Offshore	0.3	110	0.47	167	1.56	23.3	0.88	7.97	0.71	258	0.63	0.85	YES	Pb	NO		Possibly impacted
LW03-SD552-00-10C	9/7/2010	552	Offshore	0.03	138	0.59	49.5	0.46	22.2	0.84	8.16	0.73	275	0.67	0.66	NO		NO		Unimpacted
LW03-SD555-00-10C	9/9/2010	555	Offshore	0.001	169	0.73	724	6.77	25.8	0.97	8.87	0.79	540	1.32	2.12	YES	Pb, Avg	NO		Possibly impacted
LW03-SD556-00-10C	9/8/2010	556	Offshore	0.02	167	0.72	93.4	0.87	24.6	0.93	11.3	1.01	377	0.92	0.89	NO		NO		Unimpacted
LW03-SD557-00-10C	9/8/2010	557	Offshore	0.03	145	0.63	50.2	0.47	27.8	1.05	8.89	0.79	302	0.74	0.73	NO		NO		Unimpacted
LW03-SD558-00-10C	9/8/2010	558	Offshore	0.4	201	0.87	76.6	0.72	34.3	1.29	16.6	1.48	449	1.10	1.09	YES	Avg	NO		Possibly impacted
LW03-SD562-00-10C	9/8/2010	562	Offshore	0.01	133	0.57	49.6	0.46	25.9	0.98	8.29	0.74	271	0.66	0.68	NO		NO		Unimpacted
LW03-SD563-00-10C	9/8/2010	563	Offshore	0.02	131	0.56	49.4	0.46	25.1	0.95	8.08	0.72	270	0.66	0.67	NO		NO		Unimpacted
LW03-SD564-00-10C	9/8/2010	564	Offshore	0.05	144	0.62	44.2	0.41	25.4	0.96	8.02	0.72	270	0.66	0.67	NO		NO		Unimpacted
LW03-SD567-00-10C	9/8/2010	567	Offshore	0.02	161	0.69	47.9	0.45	30.2	1.14	7.96	0.71	300	0.73	0.74	NO		NO		Unimpacted
LW03-SD571-00-10C	9/8/2010	571	Offshore	0.05	131	0.56	62.4	0.58	25.1	0.95	8.39	0.75	307	0.75	0.72	NO		NO		Unimpacted
LW03-SD574-00-10C	8/31/2010	574	Offshore	0.25	163	0.70	47.7	0.45	21.7	0.82	7.18	0.64	254	0.62	0.65	NO		NO		Unimpacted

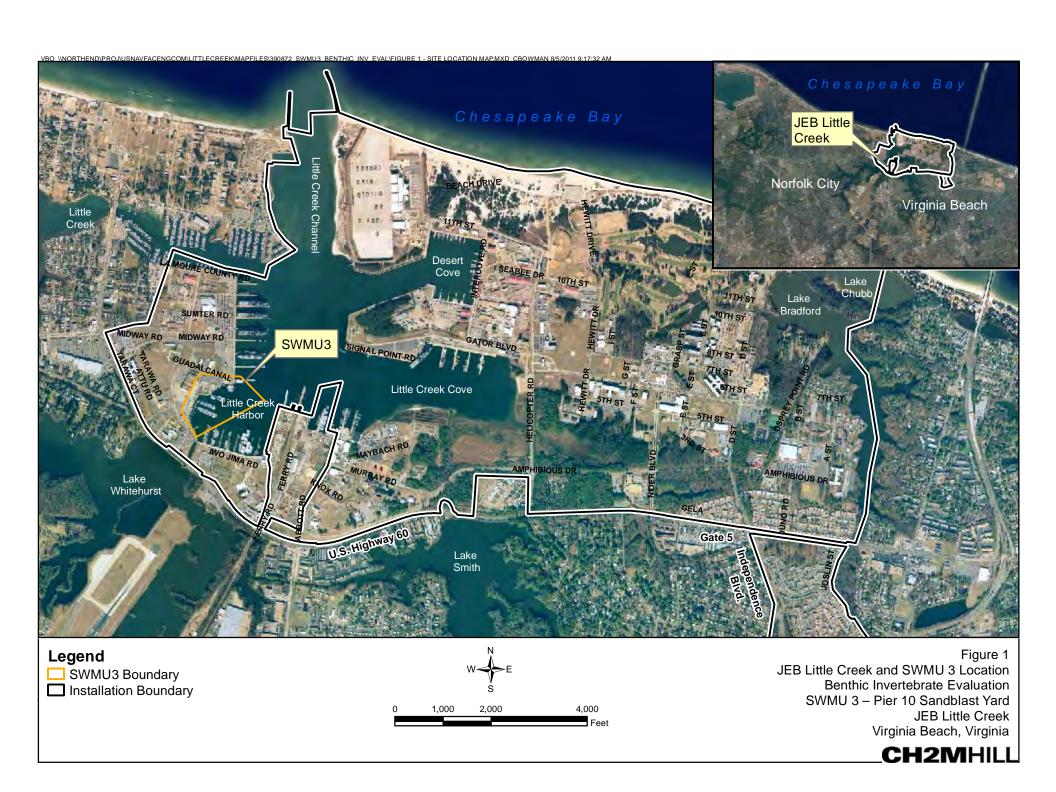
Notes:

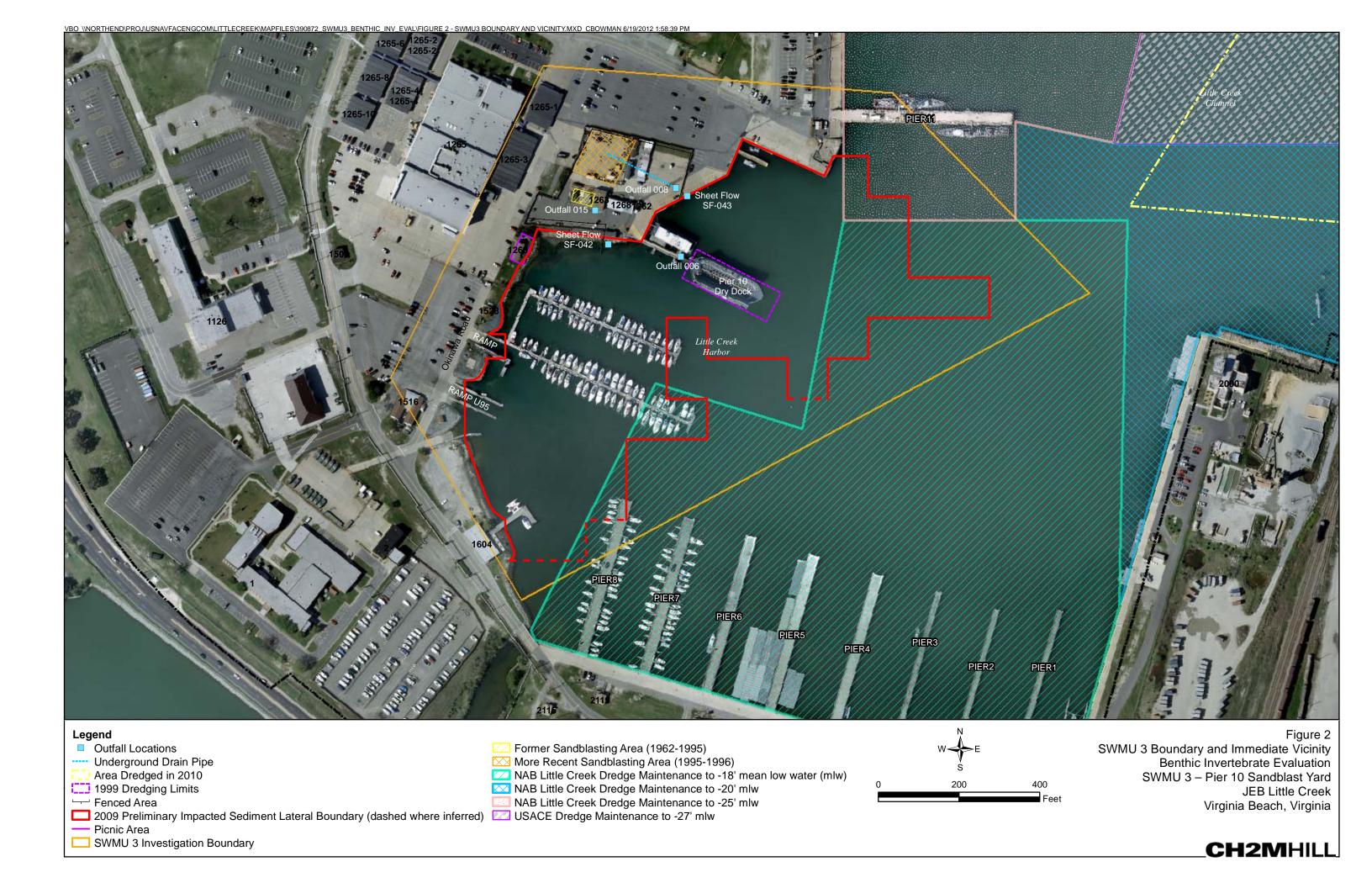
Shaded cells = detects Unshaded cells = U or B (at full DL)

RQ <u>&lt;</u> 1 or 1.5
RQ > 1.5 (Ind)
RQ > 1 (Avg)

	PRG	Basis
Copper	232	ABM
Lead	107	ABM
Nickel	26.5	Back
Tin	11.2	ABM
Zinc	410	ER-M







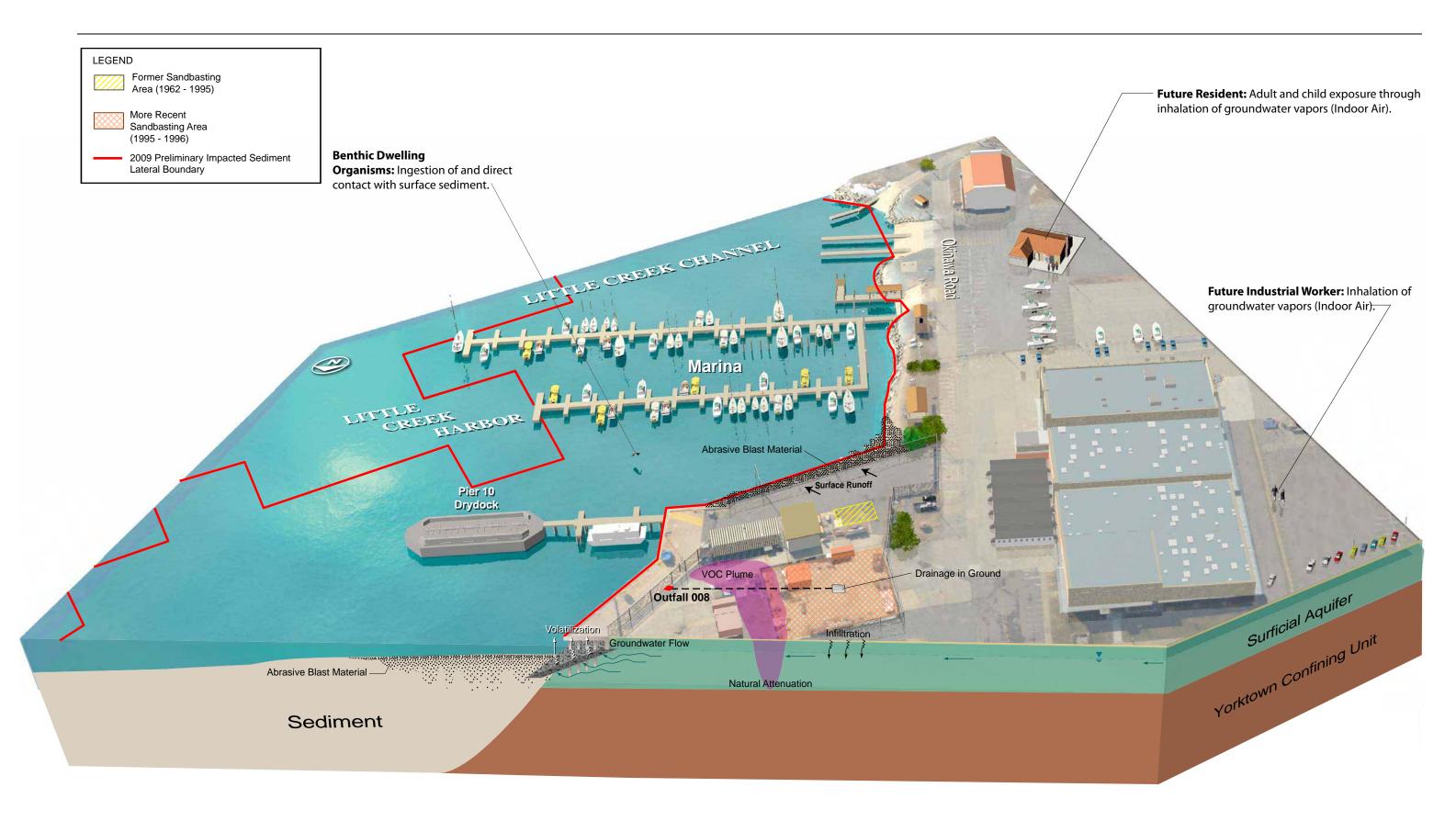
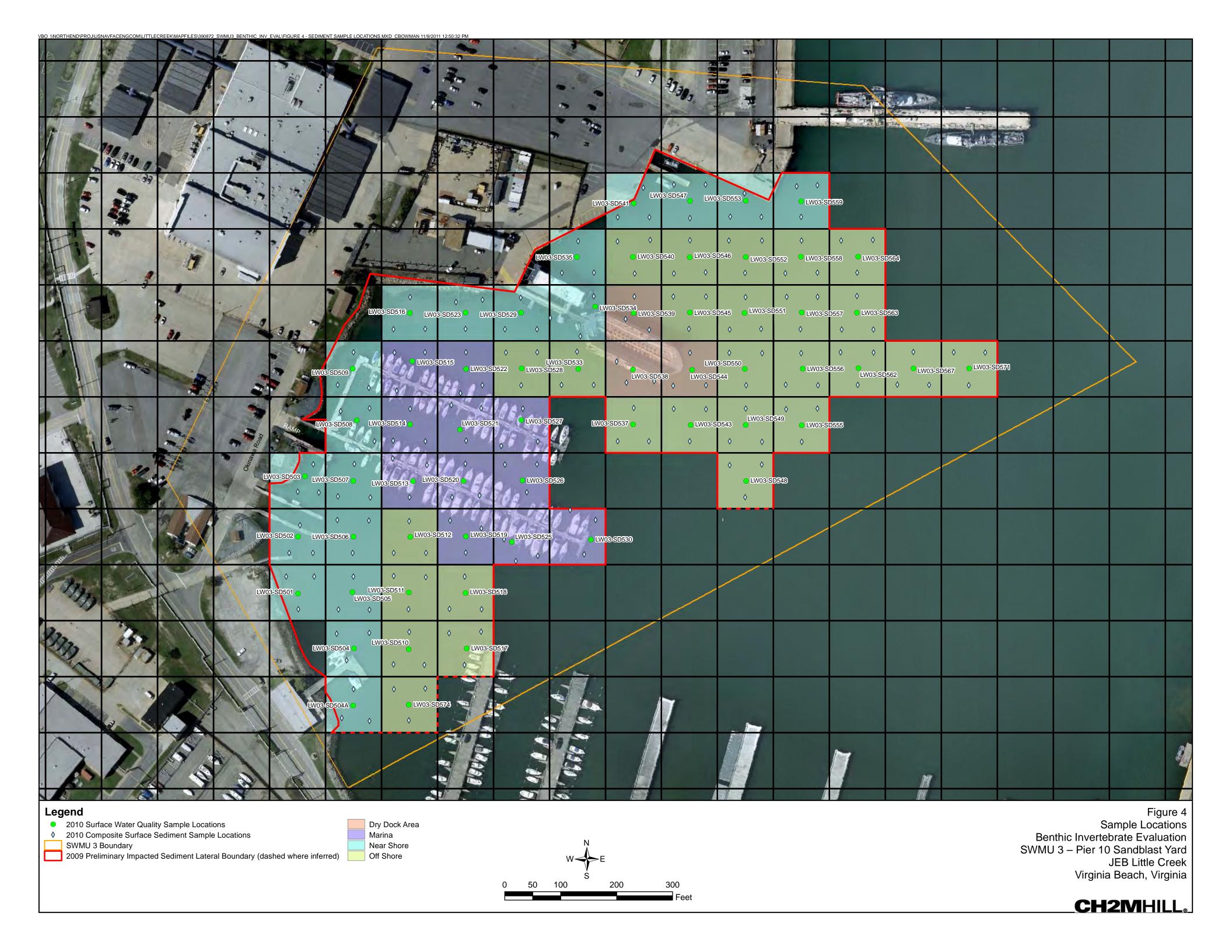
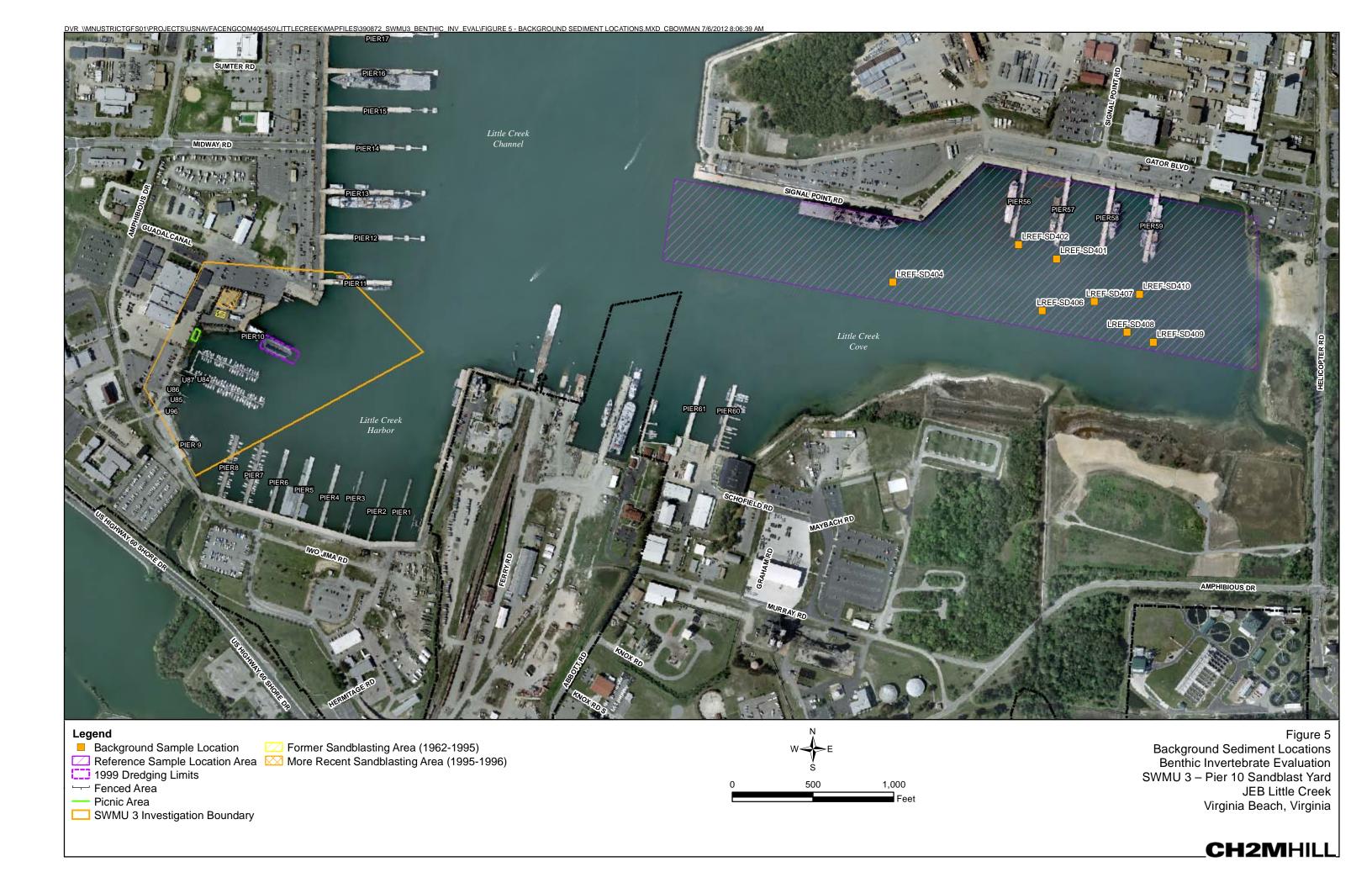
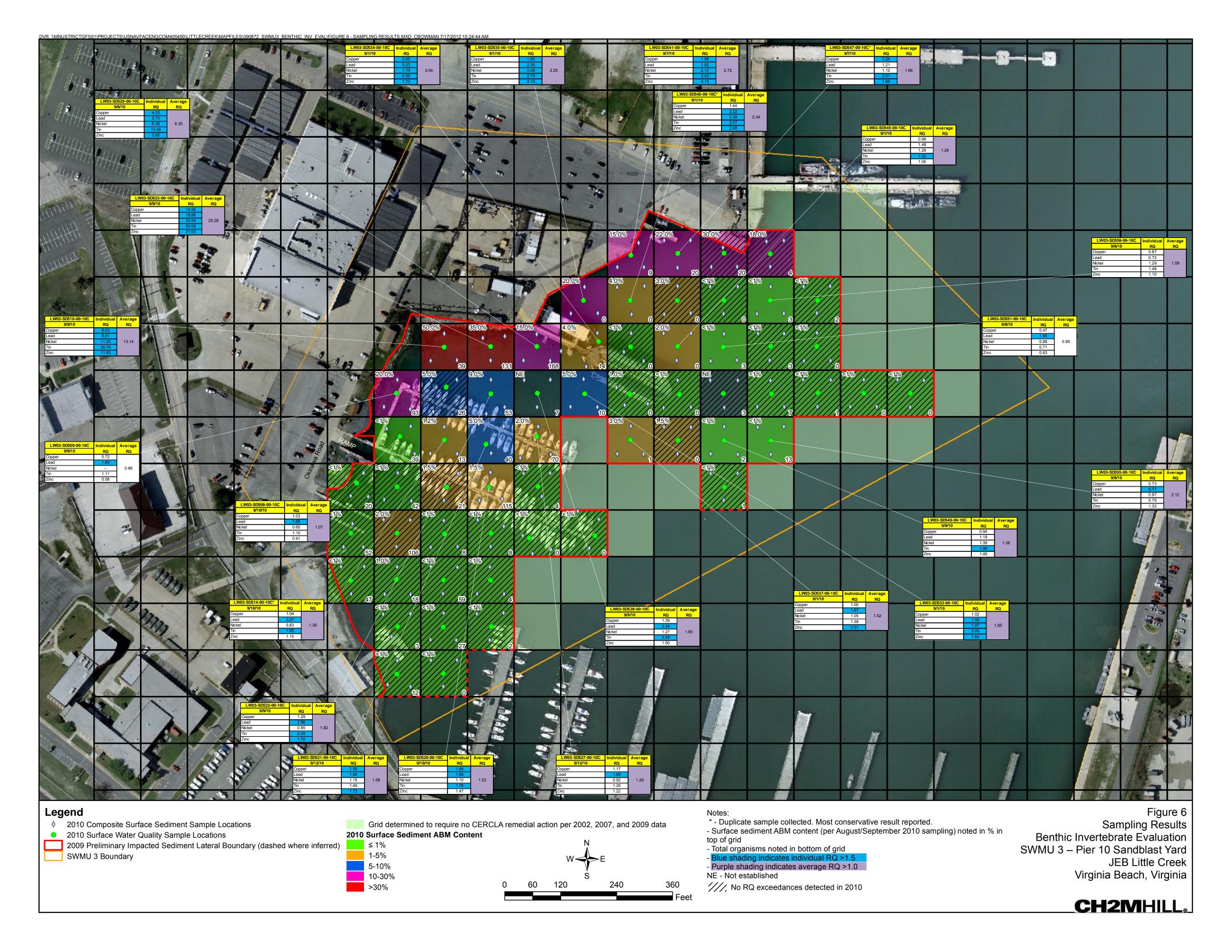


FIGURE 3 SWMU 3 Conceptual Site Model Benthic Invertebrate Evaluation SWMU 3 – Pier 10 Sandblast Yard JEB Little Creek Virginia Beach, Virginia









2010 Raw Analytical Data Benthic Invertebrate Evaluation SWMU 3 - Pier 10 Sandblast Yard JEB Little Creek Virginia Beach, Virginia

Sample ID	LW03-SD501-00-10C	LW03-SD502-00-10C	LW03-SD503-00-10C	LW03-SD504-00-10C	LW03-SD504A-00-10C	LW03-SD505-00-10C	LW03-SD506-00-10C	LW03-SD506P-00-10C	LW03-SD507-00-10C	LW03-SD508-00-10C	LW03-SD509-00-10C	LW03-SD510-00-10C
Sample Date	9/2/10	9/2/10	9/2/10	8/31/10	8/31/10	8/31/10	9/10/10	9/10/10	9/2/10	9/10/10	9/9/10	8/31/10
Chemical Name												
Total Metals (mg/kg)												
Copper	38.7	30.2	40.4	107	142	74.3	16.4	18.6	27	239	168 K	93.6
Lead	45	16.5	52.6	44.5	47.1	46.4	14.2	21.2	21.5	180	202	38.5
Nickel	3.44	16.6	5.01	10.8	17.5	12.4	3.63	3.46	5.1	17.1	13.6 B	16.6
Tin	3.79 B	5.52 B	4.44 B	5.5 B	6.18 B	13.6	4.25	3.97	6.01 B	12.3	12.4	6.05 B
Zinc	62.3 L	100 L	86.3 L	172	226 L	160 L	87.4 J	57.2 J	68 L	373	239	187 L
Acid Volatile Sulfide/Simultaneously Extractable Metals (µmol/g)												
Acid volatile sulfide	125	116	1,180	70.6	62.4	190	16.4	NS	26.5	581	27.3	113
Cadmium	0.00137 J	0.192	0.543	0.00609	0.00402	0.00205 J	0.0017 J	NS	0.208	0.00336 J	9.24E-04 J	0.01
Copper	0.123	8.39	29.9	0.479	0.381	0.26	0.138	NS	11	0.875	0.491	1.02
Lead	0.116	11.4	33.2	0.148	0.119	0.11	0.0444	NS	11.5	0.487	0.14	0.188
Mercury	0.000108 U	0.000113 U	0.000159 U	0.0000573 U	0.000047 U	0.0000732 U	0.0000991 U	NS	0.0000634 U	0.000118 U	0.0000963 U	0.0000771 U
Nickel	0.0283 B	2.64	3	0.0659	0.0314 J	0.0629	0.027 J	NS	1.9	0.0997	0.103	0.0549
Silver	0.00517 U	0.00253 U	0.00356 U	0.00275 U	0.00226 U	0.00351 U	0.00476 U	NS	0.00142 U	0.00566 U	0.00216 U	0.0037 U
Zinc	0.835 L	56.1 L	131 L	2.88	2.01	2.09	0.658	NS	48.9 L	6.06	2.3 L	4.37
Wet Chemistry (PH)												
pH	8.16	8.31	7.9	7.87	7.14	7.85	8.07	NS	7.8	7.83	8.6	7.96
Total organic carbon (TOC)	4,010	12,200	5,060	21,500	29,300	5,520	1,810	NS	2,260 J	23,400	6,020	19,700
Grain Size (PCT/P)												
GS07 Sieve 1" (25.0 mm)	100	86	100	99	100	100	100	NS	100	100	100	100
GS08 Sieve 0.75" (19.0 mm)	100	86	100	98	100	100	97	NS NS	100	100	93	100
GS09 Sieve 0.75 (19.0 min)	100	82	100	98	100	100	97	NS NS	100	100	85	100
Sieve No. 004 (4.75 mm)	99	71	99	97	98	100	97	NS NS	100	99	80	100
Sieve No. 010 (2.00 mm)	98	68	98	95	97	99	95	NS NS	99	99	78	100
Sieve No. 040 (425 um)	75	56	79	83	94	88	53	NS NS	77	82	44	96
Sieve No. 100 (425 diff)	20	46	25	48	82	47	13	NS NS	18	42	17	87
Sieve No. 200 (130 diff)	10	40	15	27	55	23	13 R	NS NS	9	23	10	64
010 VO 140. 200 (70 util)		42	15		1 33	25	0	140	9	23	10	04

#### Notes:

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- J Analyte present. Value may or may not be accurate or precise
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- L Analyte present. Value may be biased low. Value may be higher NS - Not sampled
- U The material was analyzed for, but not detected
- UL Analyte not detected, quantitation limit is probably highe mg/kg Milligrams per kilogram PCT/P Percent Passed
- PH pH units
- μmol/g Micromoles per gram

### **TABLE A-1** 2010 Raw Analytical Data Benthic Invertebrate Evaluation SWMU 3 - Pier 10 Sandblast Yard

JEB Little Creek Virginia Beach, Virginia

Commis ID	LW00 CD544 00 40C	LW00 CD540 00 40C	LW02 CD542 00 40C	LW02 CD544 00 40C	LW02 CD544D 00 40C	LW00 CD545 00 40C	LW02 CD540 00 400	LW02 CD547 00 400	1 W02 CD540 00 40C	LW00 CD540 00 40C	LW02 CD500 00 40C	LW03-SD521-00-10C
Sample ID	LW03-SD511-00-10C	LW03-SD512-00-10C	LW03-SD513-00-10C	LW03-SD514-00-10C	LW03-SD514P-00-10C	LW03-SD515-00-10C	LW03-SD516-00-10C	LW03-SD517-00-10C	LW03-SD518-00-10C	LW03-SD519-00-10C	LW03-SD520-00-10C	
Sample Date	8/31/10	9/2/10	9/10/10	9/10/10	9/10/10	9/9/10	9/9/10	8/31/10	8/31/10	9/2/10	9/10/10	9/12/10
Chemical Name												İ
												1
Total Metals (mg/kg)												i
Copper	97.4	96.3	71.7	241	241	221	1,400	245	173	112	385	367
Lead	66.3	69	64.6	243	216	123	1,050	58.1	61.9	52.4	177	209
Nickel	18.5	16.5	11.5	22	20.2	18.1	298	25.7	24.1	17.3	29.2	30.6
Tin	14	13.3	9.33	18.5	17.5	12.8	300	9.08	7.5 B	9.78	19.7	16.7
Zinc	248 L	243 L	232	473	467	395	4,850	328 L	293 L	240 L	602	711
Acid Volatile Sulfide/Simultaneously Extractable Metals (µmol/g)												
Acid volatile sulfide	169	218	1,200	1,100	NS	467	16.1	139	465	1,330	8,080	728
Cadmium	0.00316 J	0.302	0.00564 J	0.00635 J	NS	0.00267 J	0.00159 J	0.0191	0.0125	0.842	0.00689 J	0.00722
Copper	0.522	21.6	2.04	1.62	NS	1.27	6.77	0.819	0.424	56.7	1.56	2.12
Lead	0.249	30.8	0.823	0.488	NS	0.403	1.87	0.211	0.195	36	0.2	0.634
Mercury	0.000074 U	0.000124 U	0.00014 U	0.000149 U	NS	0.000114 U	0.0000943 U	0.000147 U	0.000162 UL	0.000242 U	0.000388 U	0.00015 U
Nickel	0.105	6.44	0.203	0.132	NS	0.172	2.06	0.0803 J	0.0429 J	5.79	0.12 J	0.213
Silver	0.00355 U	0.00279 U	0.00672 U	0.00716 U	NS	0.00549 U	0.00211 U	0.00704 U	0.00779 U	0.00542 U	0.0186 U	0.00722 U
Zinc	3.42	136 L	9.82	5.05	NS	4.43	7.09	4.19	3.88	200 L	3.46	8.15
												<u> </u>
Wet Chemistry (PH)												<u> </u>
рН	7.31	8.24	7.92	8.03	NS	7.95	8.2	7.97	8.11	8.24	7.58	8.21
Total organic carbon (TOC)	11,500	7,220	6,710	17,500	NS	23,200	2,180	36,700	32,400	19,700	30,000	26,900
Grain Size (PCT/P)												<u> </u>
GS07 Sieve 1" (25.0 mm)	100	100	100	100	NS	100	100	100	100	100	92	100
GS08 Sieve 0.75" (19.0 mm)	100	100	100	100	NS	100	100	100	100	100	92	100
GS09 Sieve 0.5" (12.5 mm)	100	100	100	100	NS	100	96	100	100	100	90	100
Sieve No. 004 (4.75 mm)	100	100	96	99	NS	100	95	100	100	100	86	100
Sieve No. 010 (2.00 mm)	100	100	90	98	NS	96	93	100	100	100	76	95
Sieve No. 040 (425 um)	87	91	82	93	NS	80	45	99	99	92	66	88
Sieve No. 100 (150 um)	52	50	55	77	NS	33	9	94	93	72	57	76
Sieve No. 200 (75 um)	29	35	34	51	NS	19	4	88	86	59	49	60

#### Notes:

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- L Analyte present. Value may be biased low. Value may be higher NS - Not sampled
- U The material was analyzed for, but not detected
- UL Analyte not detected, quantitation limit is probably highe mg/kg Milligrams per kilogram PCT/P Percent Passed

PH - pH units μmol/g - Micromoles per gram

### **TABLE A-1** 2010 Raw Analytical Data Benthic Invertebrate Evaluation SWMU 3 - Pier 10 Sandblast Yard

JEB Little Creek Virginia Beach, Virginia

Sample ID	LW03-SD522-00-10C	LW03-SD523-00-10C	LW03-SD525-00-10C	LW03-SD526-00-10C	LW03-SD526P-00-10C	LW03-SD527-00-10C	LW03-SD528-00-10C	LW03-SD529-00-10C	LW03-SD530-00-10C	LW03-SD533-00-10C	LW03-SD534-00-10C	LW03-SD535-00-10C
Sample Date	9/9/10	9/9/10	9/2/10	9/10/10	9/10/10	9/12/10	9/9/10	9/9/10	9/2/10	9/1/10	9/1/10	9/1/10
Chemical Name												
onemica Name												
Total Metals (mg/kg)												
Copper	300	2,450 K	179	214	196	271	323	935	169	237	615	431
Lead	317	2,020	54.5	68.2	66	201	250	399	53.3	167	538	253
Nickel	22.6	661	22.7	25.8	24.1	24.4	33.6	169	33	52.2	46.3	55.5
Tin	25.8	561	7.86	10.1	8.88	14.4	27.9	151 L	9.49	34.2	45.4	31.3
Zinc	699	8,990	281 L	374	342	500	616	1,600	291 L	673 L	711 L	886 L
		-,	-	-				,	-			
Acid Volatile Sulfide/Simultaneously Extractable Metals (µmol/g)												
Acid volatile sulfide	384	1,220	750	3,190	NS	1,020	2,510	288	2,380	3,650	4,030	2,110
Cadmium	0.00302 J	0.00308	1.11	0.00999 J	NS	0.0127	0.00617 J	0.0057	1.43	0.0099 J	0.00861 J	0.00781 J
Copper	1.5	4.43	81.1	2.1	NS	2.12	1.97	2.6	69.3	1.29	1.24	2.82
Lead	0.652	1.01	36.1	0.233	NS	0.387	0.704	0.666	35.3	0.259	0.249	1.28
Mercury	0.000102 U	0.00013 U	0.000332 U	0.000443 U	NS	0.000259 U	0.000162 U	0.0000964 U	0.000407 U	0.00054 U	0.000518 U	0.000179 U
Nickel	0.38	1.11	3.53	0.14 J	NS	0.128 J	0.239	0.511	3.79	0.0921 J	0.0873 J	0.617
Silver	0.00492 U	0.0029 U	0.00744 U	0.0212 U	NS	0.0124 U	0.00778 U	0.00216 U	0.00912 U	0.0259 U	0.0249 U	0.00858 U
Zinc	8.62	9.24 L	219 L	4.37	NS	5.93	7.37	10.9	181 L	5.03	5.12	19.7
Wet Chemistry (PH)												
рН	7.78	8.83	8.14	8.01	NS	8.16	7.72	8.93	6.98	8.2	8.04	8.22
Total organic carbon (TOC)	8,130	5,770	35,500	35,300	NS	28,700	16,500	4,860	44,300	23,300	24,900	39,000
Grain Size (PCT/P)												
GS07 Sieve 1" (25.0 mm)	100	88	100	100	NS	100	100	100	100	100	100	100
GS08 Sieve 0.75" (19.0 mm)	100	88	100	100	NS	100	100	100	100	100	100	99
GS09 Sieve 0.5" (12.5 mm)	100	82	100	100	NS	100	100	99	100	100	100	99
Sieve No. 004 (4.75 mm)	100	75	100	100	NS	99	100	97	100	100	94	95
Sieve No. 010 (2.00 mm)	100	72	100	100	NS	91	99	92	100	99	91	93
Sieve No. 040 (425 um)	83	36	91	99	NS	88	91	61	87	85	58	68
Sieve No. 100 (150 um)	39	14	74	95	NS	84	70	16	73	64	36	54
Sieve No. 200 (75 um)	23	7	69	93	NS	79	47	9	66	49	27	46

#### Notes:

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- PH pH units
- μmol/g Micromoles per gram

2010 Raw Analytical Data Benthic Invertebrate Evaluation SWMU 3 - Pier 10 Sandblast Yard JEB Little Creek Virginia Beach, Virginia

Sample ID	LW03-SD537-00-10C	LW03-SD538-00-10C	LW03-SD539-00-10C	LW03-SD540-00-10C	LW03-SD540P-00-10C	LW03-SD541-00-10C	LW03-SD543-00-10C	LW03-SD544-00-10C	LW03-SD545-00-10C	LW03-SD546-00-10C	LW03-SD547-00-10C	LW03-SD547P-00-10C
Sample Date	9/1/10	9/1/10	9/1/10	9/1/10	9/1/10	9/7/10	9/1/10	9/1/10	9/1/10	9/1/10	9/7/10	9/7/10
	5/1/10	37.17.10	5, 1, 10	5/ 1/ 10	0,1,10	3/1/10	0/1/10	3, 1, 10	37.17.10	0,1,10	0,1,10	0,1,10
Chemical Name												
Total Metals (mg/kg)	004	105	000	201	000	400.17	454	450	200	107	404.16	505.14
Copper	231	165	206	334	283	460 K	151	156	230	197	161 K	525 K
Lead	179	50.1	40.4	214	238	205	62.3	45.5	158	60.4	83.4	129
Nickel	27.8	25.4	28.8	63	43.4	56.1	28	27.2	33.3	27.1	23.5	29.8
Tin	15.5	9.48	10.7	40	32	38.4	9.35	8.46	17	9.35	13.6	22.5
Zinc	1,030 L	313 L	349 L	852 L	699 L	1,700	344 L	267 L	433 L	318 L	467	687
Acid Volatile Sulfide/Simultaneously Extractable Metals (µmol/g)												
Acid volatile sulfide	394	2.880	1,490	812	NS	4,280	88.5	2,460	1,710	1,530	4,260	NS
Cadmium	0.00781 J	0.00717 J	0.0386	0.00602 J	NS NS	0.935	0.0085 J	0.00755 J	0.00609 J	0.0413	1.42	NS
Copper	0.841	1.4	1.14	1.14	NS	61.8	0.702	1.27	0.00009 3	1.09	86.7	NS
Lead	0.252	0.197	0.272	0.44	NS	97.3	0.702	0.194	0.234	0.225	57.1	NS
Mercury	0.000229 U	0.000466 U	0.000294 U	0.000164 U	NS NS	0.00022 U	0.000224 U	0.000483 U	0.00038 U	0.000303 U	0.000395 U	NS
Nickel	0.000229 U	0.000400 U	0.000294 U	0.000104 0	NS	12.4	0.000224 U	0.000483 U	0.00038 U	0.000303 U	7.12	NS
Silver	0.120 J 0.011 U	0.0223 U	0.0141 U	0.00787 U	NS	0.00494 U	0.0107 U	0.0232 U	0.0182 U	0.001 J	0.00884 U	NS
Zinc	5.36	4.35	5.67	6.63	NS NS	0.00494 0 445 L	3.55	3.82	5.06	4.32	273 L	NS
Ziric	3.30	4.55	3.07	0.03	140	443 L	3.33	3.02	3.00	4.52	213 L	INO
Wet Chemistry (PH)												
pH	8.66	7.94	7.09	8.13	NS	8.7	8.3	8.02	8.59	8.37	8.78	NS
Total organic carbon (TOC)	19,700	45,300	34,600	18,800	NS	42,800	29,100	38,800	24,300	23,000	22,100	NS
Grain Size (PCT/P)												
GS07 Sieve 1" (25.0 mm)	100	100	100	100	NS	100	100	100	100	100	100	NS
GS08 Sieve 0.75" (19.0 mm)	100	100	100	100	NS	100	100	100	100	100	100	NS
GS09 Sieve 0.5" (12.5 mm)	100	100	100	100	NS	100	100	100	100	100	100	NS
Sieve No. 004 (4.75 mm)	100	100	100	100	NS	95	100	100	100	100	97	NS
Sieve No. 010 (2.00 mm)	100	99	100	100	NS	92	100	100	100	100	94	NS
Sieve No. 040 (425 um)	97	97	93	81	NS	68	99	100	98	96	55	NS
Sieve No. 100 (150 um)	93	92	82	53	NS	46	97	97	94	92	35	NS
Sieve No. 200 (75 um)	89	88	73	44	NS	38	94	95	91	90	33	NS

#### Notes:

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- J Analyte present. Value may or may not be accurate or precise
- K Analyte present. Value may be biased high. Value may be lower
- L Analyte present. Value may be biased low. Value may be higher NS - Not sampled
- U The material was analyzed for, but not detected
- UL Analyte not detected, quantitation limit is probably highe mg/kg Milligrams per kilogram PCT/P Percent Passed
- PH pH units
- μmol/g Micromoles per gram

2010 Raw Analytical Data Benthic Invertebrate Evaluation SWMU 3 - Pier 10 Sandblast Yard JEB Little Creek Virginia Beach, Virginia

Sample ID	LW03-SD548-00-10C	LW03-SD549-00-10C	LW03-SD550-00-10C	LW03-SD551-00-10C	LW03-SD552-00-10C	LW03-SD553-00-10C	LW03-SD555-00-10C	LW03-SD556-00-10C	LW03-SD556P-00-10C	LW03-SD557-00-10C	LW03-SD558-00-10C	LW03-SD559-00-10C
Sample Date	9/9/10	9/9/10	9/8/10	9/8/10	9/7/10	9/7/10	9/9/10	9/8/10	9/8/10	9/8/10	9/8/10	9/7/10
·	5/5/10	3/3/10	0/0/10	3/0/10	0/1/10	3/1/10	0/0/10	0/0/10	3/3/10	0,0,10	0/0/10	3/1/10
Chemical Name												
Total Back to Constitution												
Total Metals (mg/kg)	101	040	50.4.1/	440.10	400.14	040.14	400	407.1/	444.17	445.17	004.1/	407.1/
Copper	161	218	53.1 K	110 K	138 K	212 K	169	167 K	144 K	145 K	201 K	127 K
Lead	55.1	126	16.4	167	49.5	69.5	724	93.4	72	50.2	76.6	140
Nickel	26.9	36.8	8.72 B	23.3	22.2	26.3	25.8	24.4	24.6	27.8	34.3	15.6 B
Tin	8.31	22	2.89	7.97	8.16	14.7	8.87	11.3	9.72	8.89	16.6	6.66
Zinc	340	595	102	258	275	469	540	377	314	302	449	302
Acid Volatile Sulfide/Simultaneously Extractable Metals (µmol/g)												
Acid volatile sulfide	2.440	900	695	347	735	585	740	1.030	NS	1.480	619	806
Cadmium	0.00682	0.00618	0.00703	0.00587	0.00846	0.00315	0.00754	0.00845	NS	0.00762	0.00764	0.00234
	1.25	1.13	1.51	1.29	1.94	1.78	0.00754 1.13 L	5.49	NS	1.71	1.79	0.00234
Copper										0.327		
Lead	0.136	0.179	0.294	0.294	0.247	0.18	0.231 L	0.412	NS		0.303	0.163
Mercury	0.000362 U	0.000248 U	0.000213 U	0.000196 U	0.000274 U	0.000142 U	0.000248 U	0.000257 U	NS	0.000288 U	0.000326 U	0.00013 U
Nickel	0.103	0.117	0.219	0.225	0.142	0.118	0.157 J	0.199	NS	0.192	0.207	0.0531
Silver	0.0081 U	0.00555 U	0.00476 U	0.00439 U	0.00614 U	0.00319 U	0.00555 U	0.00576 U	NS	0.00646 U	0.00731 U	0.00291 U
Zinc	2.89	3.39	5.69	4.6	5.12	3.39	3.43 K	5.47	NS	5.03	5.04	2.01
Wet Chemistry (PH)												
nH	8.89	7.96	8.6	8.94	8.77	8.9	8.21	8.65	NS	8.41	8.72	8.86
Total organic carbon (TOC)	36,000	22,700	33,200	25,800	37,600	43,200	32,300	24,400	NS	36.700	33,900	25,900
Total organic carbon (100)	30,000	22,700	33,200	23,000	37,000	45,200	32,300	24,400	INO	30,700	33,900	25,300
Grain Size (PCT/P)												
GS07 Sieve 1" (25.0 mm)	100	100	100	100	100	85	100	100	NS	100	100	100
GS08 Sieve 0.75" (19.0 mm)	100	100	100	100	100	82	100	100	NS	100	100	100
GS09 Sieve 0.5" (12.5 mm)	100	100	100	100	100	82	100	100	NS	100	100	100
Sieve No. 004 (4.75 mm)	100	100	100	100	100	77	100	100	NS	100	100	100
Sieve No. 010 (2.00 mm)	100	100	100	100	100	73	100	100	NS	100	99	100
Sieve No. 040 (425 um)	98	96	86	94	98	41	90	90	NS	96	93	91
Sieve No. 100 (150 um)	92	84	59	80	92	21	80	82	NS	82	90	74
Sieve No. 200 (75 um)	82	76	53	69	88	17	73	76	NS	77	87	56

#### Notes:

- B Analyte not detected above the level reported in associated blanks
- J Analyte present. Value may or may not be accurate or precise
- K Analyte present. Value may be biased high. Value may be lower
- L Analyte present. Value may be biased low. Value may be higher NS - Not sampled
- U The material was analyzed for, but not detected
- UL Analyte not detected, quantitation limit is probably highe mg/kg Milligrams per kilogram PCT/P Percent Passed

PH - pH units

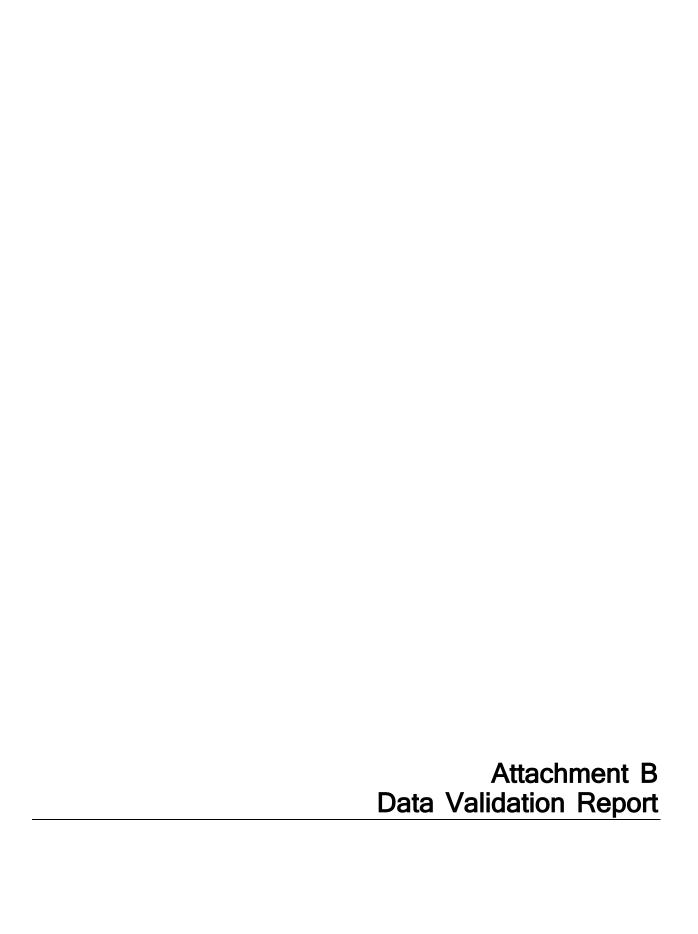
μmol/g - Micromoles per gram

2010 Raw Analytical Data Benthic Invertebrate Evaluation SWMU 3 - Pier 10 Sandblast Yard JEB Little Creek Virginia Beach, Virginia

Sample ID	LW03-SD562-00-10C	LW03-SD563-00-10C	LW03-SD564-00-10C	LW03-SD567-00-10C	LW03-SD571-00-10C	LW03-SD574-00-10C
Sample Date	9/8/10	9/8/10	9/8/10	9/8/10	9/8/10	8/31/10
Chemical Name						
Total Metals (mg/kg)						
Copper	133 K	131 K	144 K	161 K	131 K	163
Lead	49.6	49.4	44.2	47.9	62.4	47.7
Nickel	25.9	25.1	25.4	30.2	25.1	21.7
Tin	8.29	8.08	8.02	7.96	8.39	7.18 B
Zinc	271	270	270	300	307	254 L
Acid Volatile Sulfide/Simultaneously Extractable Metals (µmol/q)						
Acid volatile sulfide	1,700	1,750	1,560	2,280	1,730	83.1
Cadmium	0.0063 J	0.00648	0.00855	0.00712	0.00576	0.00691
Copper	0.89	1.59	2.29	1.35	1.41	0.587
Lead	0.127	0.201	0,209	0.153	0.157	0.14
Mercury	0.00037 U	0.00034 U	0.000351 U	0.000331 U	0.000324 U	0.0000677 U
Nickel	0.119	0.161	0.178	0.13	0.125	0.049
Silver	0.00828 U	0.00762 U	0.00787 U	0.00742 U	0.00727 U	0.00325 U
Zinc	2.87	3.66	4.6	3.07	3.04	3.17
Wet Chemistry (PH)						
рН	8.8	8.86	8.58	8.03	8.61	7.59
Total organic carbon (TOC)	38,100	28,900	29,800	27,600	23,600	35,000
Grain Size (PCT/P)						
GS07 Sieve 1" (25.0 mm)	100	100	100	100	100	100
GS08 Sieve 0.75" (19.0 mm)	100	100	100	100	100	100
GS09 Sieve 0.75 (19.0 mm)	100	100	100	100	100	100
Sieve No. 004 (4.75 mm)	100	100	100	100	100	100
Sieve No. 010 (2.00 mm)	100	100	100	100	100	100
Sieve No. 040 (425 um)	99	98	98	98	98	99
Sieve No. 100 (150 um)	99	91	93	92	90	91
Sieve No. 200 (75 um)	95	88	93	92	85	86
010 VC 140. 200 (10 uiii)	95	86	91	1 30	00	00

- B Analyte not detected above the level reported in associated blanks
- J Analyte present. Value may or may not be accurate or precise
- K Analyte present. Value may be biased high. Value may be lower
- L Analyte present. Value may be biased low. Value may be higher
- NS Not sampled
- U The material was analyzed for, but not detected
- UL Analyte not detected, quantitation limit is probably highe mg/kg Milligrams per kilogram PCT/P Percent Passed

- PH pH units
- μmol/g Micromoles per gram



MEMORANDUM CH2MHILL

## **Data Validation Summary**

## **CTO-222 Little Creek**

TO: Anita Dodson/VBO

Megan Morrison/WDC

FROM: Tiffany McGlynn/GNV

CC: Herb Kelly/GNV

DATE: November 8, 2010

## **Introduction**

The following data validation report discusses the data validation process and findings for Empirical Laboratories, LLC for SDG 1009022.

Samples were analyzed using the following analytical methods:

- SW6010B Total Metals
- SEM Metals
- SW7470A/7471 Mercury

The samples included in this SDG are listed in the table below.

Sample Name	Lab Sample ID
LW03-SD504A-00-10C	1009022-01
LW03-SD504A-00-10C	1009022-02
LW03-SD574-00-10C	1009022-03
LW03-SD574-00-10C	1009022-04
LW03-SD504-00-10C	1009022-05
LW03-SD504-00-10C	1009022-06
LW03-SD510-00-10C	1009022-07
LW03-SD510-00-10C	1009022-08
LW03-SD517-00-10C	1009022-09
LW03-SD517-00-10C	1009022-10
LW03-SD518-00-10C	1009022-11

Sample Name	Lab Sample ID
LW03-SD518-00-10C	1009022-12
LW03-SD511-00-10C	1009022-13
LW03-SD511-00-10C	1009022-14
LW03-SD505-00-10C	1009022-15
LW03-SD505-00-10C	1009022-16
LW03-SD534-00-10C	1009022-17
LW03-SD534-00-10C	1009022-18
LW03-SD538-00-10C	1009022-19
LW03-SD538-00-10C	1009022-20
LW03-SD537-00-10C	1009022-21
LW03-SD537-00-10C	1009022-22
LW03-SD533-00-10C	1009022-23
LW03-SD533-00-10C	1009022-24
LW03-SD539-00-10C	1009022-25
LW03-SD539-00-10C	1009022-26
LW03-SD544-00-10C	1009022-27
LW03-SD544-00-10C	1009022-28
LW03-SD546-00-10C	1009022-29
LW03-SD546-00-10C	1009022-30
LW03-SD535-00-10C	1009022-31
LW03-SD535-00-10C	1009022-32
LW03-SD545-00-10C	1009022-33
LW03-SD545-00-10C	1009022-34
LW03-SD543-00-10C	1009022-35
LW03-SD543-00-10C	1009022-36
LW03-SD540-00-10C	1009022-37
LW03-SD540-00-10C	1009022-38
LW03-EB01-090110	1009022-39
LW03-SD540P-00-10C	1009022-40

### **Data Evaluation**

Data was evaluated in accordance with the analytical methods and with the criteria found in the following guidance documents: National Functional Guidelines for Inorganic Methods Data Review (EPA 2004) and Region III Modifications for Inorganic Data Review (EPA 1993), as applicable. The samples were evaluated based on the following criteria:

Data Completeness

- Technical Holding Times
- Initial/Continuing Calibrations
- Blanks
- Internal Standards
- Serial Dilutions
- Laboratory Control Samples
- Matrix Spike Recoveries
- Field Duplicates
- Identification/Quantitation
- Reporting Limits

### Overall Evaluation of Data/Potential Usability Issues

Specific details regarding qualification of the data are addressed in the sections below. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte, the validator has chosen the qualifier that best indicates possible bias in the results and qualified these data accordingly.

#### **Data Completeness**

The SDG was received complete and intact. Resubmissions were not required.

#### **Technical Holding Times**

According to the chain of custody records, sampling was performed on 8/31/10 and 9/1/10. Samples were received at the laboratory on 9/2/10. All sample preparation analysis was performed within holding time requirements.

#### Calibration

Continuing calibration was below criteria for all zinc results for total metals. See table below for recoveries. Affected data are summarized in **Attachment 1**.

CCV	Compound	Recovery
0I25907-CCV4	Zinc	88.4%
0I25907-CCV5	Zinc	86.2%
0I25907-CCV6	Zinc	86.1%

#### **Blanks**

Various compounds were detected in the equipment blank, and method blanks for both total metals and SEM metals as indicated below. Affected data are summarized in **Attachment 1.** 

Lab case narrative noted nickel and zinc results in the equipment blank were qualified as Z-01 because sample containers were contaminated with acid containing nickel and zinc.

				Action	
Blank ID	Compound	Conc.	Units	Level	Units
LW03-EB01-090110	Copper	1.65	ug/l	0.4125	mg/kg
LW03-EB01-090110	Lead	0.827	ug/l	0.20675	mg/kg
LW03-EB01-090110	Nickel	48.5	ug/l	12.125	mg/kg
MB-0I14011	Tin	1.44	mg/kg	7.2	mg/kg
MB-0I14012	Tin	1.45	mg/kg	7.25	mg/kg
LW03-EB01-090110	Zinc	8.27	ug/l	2.0675	mg/kg
AVS 0I14025-BLK	Lead	0.000417	umoles/g	0.002085	umoles/g
AVS 0I10001-BLK	Zinc	0.00249	umoles/g	0.01245	umoles/g
AVS 0I14025-BLK	Zinc	0.00212	umoles/g	0.0106	umoles/g

### Matrix Spike/Spike Duplicate

Mercury exhibited low recoveries for the MS/MSD (73.4/71.4%) for sample LW03-SD518-00-10C-SEM. Affected data are summarized in **Attachment 1.** 

## Conclusion

These data can be used in the project decision-making process as qualified by the data quality evaluation process.

Please do not hesitate to contact us about this validation report.

Sincerely,

Tiffany McGlynn

Tillary Willya

#### **Qualification Flags**

Exclude More appropriate data exist for this analyte.

R Data were rejected for use.

Analyte not detected, quantitation limit is potentially biased

UL low.

UJ Analyte not detected, estimated quantitation limit.

U Analyte not detected.

Not detected substantially above the level reported in

B laboratory or field blanks.

L Analyte present, estimated value potentially biased low.
K Analyte present, estimated value potentially biased high.

Analyte identification presumptive; no second column analysis

N performed or GC/MS tentative identification.

J Analyte present, estimated value.

Analysis indicates the presence of an analyte that was

"tentatively identified" and the associated value represents its

NJ approximate concentration.

Placeholder for calculating quality control issues that do not

None require flagging.

Analyte was detected at a concentration greater than the

guantitation limit.

### **Qualifier Code Reference**

Value	Description
value	Description
%SOL	High Moisture content
2C	Second Column – Poor Dual Column Reproducibility
2S	Second Source – Bad reproducibility between tandem detectors
BD	Blank Spike/Blank Spike Duplicate(LCS/LCSD) Precision
BRL	Below Reporting Limit
BSH	Blank Spike/LCS – High Recovery
BSL	Blank Spike/LCS – Low Recovery
СС	Continuing Calibration
ССН	Continuing Calibration Verification – High Recovery
CCL	Continuing Calibration Verification – Low Recovery
DL	Redundant Result – due to Dilution
EBL	Equipment Blank Contamination
EMPC	Estimated Possible Maximum Concentration
ESH	Extraction Standard - High Recovery
ESL	Extraction Standard - Low Recovery
FBL	Field Blank Contamination
FD	Field Duplicate
HT	Holding Time
ICB	Initial Calibration – Bad Linearity or Curve Function
ICH	Initial Calibration – High Relative Response Factors
ICL	Initial Calibration – Low Relative Response Factors
ISH	Internal Standard – High Recovery
ISL	Internal Standard – Low Recovery
LD	Lab Duplicate Reproducibility
LR	Concentration Exceeds Linear Range
MBL	Method Blank Contamination
MDP	Matrix Spike/Matrix Spike Duplicate Precision
MI	Matrix interference obscuring the raw data
MSH	Matrix Spike and/or Matrix Spike Duplicate – High Recovery
MSL	Matrix Spike and/or Matrix Spike Duplicate – Low Recovery
ОТ	Other
PD	Pesticide Degradation

Value	Description
RE	Redundant Result - due to Reanalysis or Reextraction
SD	Serial Dilution Reproducibility
SSH	Spiked Surrogate – High Recovery
SSL	Spiked Surrogate – Low Recovery
TBL	Trip Blank Contamination
TN	Tune

MEMORANDUM CH2MHILL

## **Data Validation Summary**

## **CTO-222 Little Creek**

TO: Anita Dodson/VBO

Megan Morrison/WDC

FROM: Tiffany McGlynn/GNV

CC: Herb Kelly/GNV

DATE: November 8, 2010

## **Introduction**

The following data validation report discusses the data validation process and findings for Empirical Laboratories, LLC for SDG 1009032.

Samples were analyzed using the following analytical methods:

- SW6010B Total Metals
- SEM Metals
- SW7470A/7471 Mercury

The samples included in this SDG are listed in the table below.

Sample Name	Lab Sample ID
LW03-SD501-00-10C	1009032-01
LW03-SD501-00-10C	1009032-02
LW03-SD502-00-10C	1009032-03
LW03-SD502-00-10C	1009032-04
LW03-SD503-00-10C	1009032-05
LW03-SD503-00-10C	1009032-06
LW03-SD530-00-10C	1009032-07
LW03-SD530-00-10C	1009032-08
LW03-SD525-00-10C	1009032-09
LW03-SD525-00-10C	1009032-10
LW03-SD519-00-10C	1009032-11

Sample Name	Lab Sample ID
LW03-SD519-00-10C	1009032-12
LW03-SD512-00-10C	1009032-13
LW03-SD512-00-10C	1009032-14
LW03-SD507-00-10C	1009032-15
LW03-SD507-00-10C	1009032-16

#### **Data Evaluation**

Data was evaluated in accordance with the analytical methods and with the criteria found in the following guidance documents: National Functional Guidelines for Inorganic Methods Data Review (EPA 2004) and Region III Modifications for Inorganic Data Review (EPA 1993), as applicable. The samples were evaluated based on the following criteria:

- Data Completeness
- Technical Holding Times
- Initial/Continuing Calibrations
- Blanks
- Internal Standards
- Serial Dilutions
- Laboratory Control Samples
- Matrix Spike Recoveries
- Field Duplicates
- Identification/Quantitation
- Reporting Limits

## Overall Evaluation of Data/Potential Usability Issues

Specific details regarding qualification of the data are addressed in the sections below. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte, the validator has chosen the qualifier that best indicates possible bias in the results and qualified these data accordingly.

#### **Data Completeness**

The SDG was received complete and intact. Resubmissions were not required.

#### **Technical Holding Times**

According to the chain of custody records, sampling was performed on 9/2/10. Samples were received at the laboratory on 9/3/10. All sample preparation analysis was performed within holding time requirements.

#### Calibration

Continuing calibration was below criteria for all zinc results for total and SEM metals. See table below for recoveries. Affected data are summarized in **Attachment 1**.

CCV	Compound	Recovery
0I25907-CCV4	Zinc	88.4%
0I25907-CCV5	Zinc	86.2%
0I25907-CCV6	Zinc	86.1%
I 26609-CCV5	Zinc	89.5%
I 26609-CCV6	Zinc	87.5%

#### Blanks

Various compounds were detected in the equipment blank, method blanks, and calibration blanks for both total metals and SEM metals as indicated below. Affected data are summarized in **Attachment 1**.

Lab case narrative noted nickel and zinc results in the equipment blank were qualified as Z-01 because sample containers were contaminated with acid containing nickel and zinc.

Blank ID	Compound	Conc.	Units	Action Level	Units
LW03-EB01-090110	Copper	1.65	ug/l	0.4125	mg/kg
LW03-EB01-090110	Lead	0.827	ug/l	0.20675	mg/kg

				Action	
Blank ID	Compound	Conc.	Units	Level	Units
LW03-EB01-090110	Nickel	48.5	ug/l	12.125	mg/kg
MB-0I14011	Tin	1.44	mg/kg	7.2	mg/kg
MB-0I14012	Tin	1.45	mg/kg	7.25	mg/kg
LW03-EB01-090110	Zinc	8.27	ug/l	2.0675	mg/kg
0I23010-BLK1 SEM	Cadmium	0.0169	umoles/g	0.0845	umoles/g
0I23010-BLK1 SEM	Copper	0.0123	umoles/g	0.0615	umoles/g
0I23010-BLK1 SEM	Lead	0.0008	umoles/g	0.004	umoles/g
AVS 0I14025	Lead	0.000417	umoles/g	0.002085	umoles/g
0I23010-BLK1 SEM	Nickel	0.0226	umoles/g	0.113	umoles/g
0123010-BLK1 SEM	Silver	0.00383	umoles/g	0.01915	umoles/g
AVS 0I14025	Zinc	0.00249	umoles/g	0.01245	umoles/g

## Conclusion

These data can be used in the project decision-making process as qualified by the data quality evaluation process.

Please do not hesitate to contact us about this validation report.

Sincerely,

Tiffany McGlynn

Tillary Willya

#### **Qualification Flags**

Exclude More appropriate data exist for this analyte.

R Data were rejected for use.

Analyte not detected, quantitation limit is potentially biased

UL low.

UJ Analyte not detected, estimated quantitation limit.

U Analyte not detected.

Not detected substantially above the level reported in

B laboratory or field blanks.

L Analyte present, estimated value potentially biased low.
K Analyte present, estimated value potentially biased high.

Analyte identification presumptive; no second column analysis

N performed or GC/MS tentative identification.

J Analyte present, estimated value.

Analysis indicates the presence of an analyte that was

"tentatively identified" and the associated value represents its

NJ approximate concentration.

Placeholder for calculating quality control issues that do not

None require flagging.

Analyte was detected at a concentration greater than the

guantitation limit.

### **Qualifier Code Reference**

## SOL High Moisture content    C	Value	Description
2C Second Column – Poor Dual Column Reproducibility  2S Second Source – Bad reproducibility between tandem detectors  BD Blank Spike/Blank Spike Duplicate(LCS/LCSD) Precision  BRL Below Reporting Limit  BSH Blank Spike/LCS – High Recovery  BSL Blank Spike/LCS – Low Recovery  CC Continuing Calibration  CCH Continuing Calibration Verification – High Recovery  DL Redundant Result – due to Dilution  EBL Equipment Blank Contamination  EMPC Estimated Possible Maximum Concentration  ESH Extraction Standard - High Recovery  ESL Extraction Standard - Low Recovery  FBL Field Blank Contamination  FD Field Duplicate  HT Holding Time  ICB Initial Calibration – Bad Linearity or Curve Function  ICH Initial Calibration – High Relative Response Factors  ICL Initial Calibration – Low Relative Response Factors  ISH Internal Standard – High Recovery  LD Lab Duplicate Reproducibility  LR Concentration Exceeds Linear Range  MBL Method Blank Contamination  MDP Matrix Spike/Matrix Spike Duplicate Precision  MI Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  OT Other		Description
Reproducibility  Second Source – Bad reproducibility between tandem detectors  BD Blank Spike/Blank Spike Duplicate (LCS/LCSD) Precision  BRL Below Reporting Limit  BSH Blank Spike/LCS – High Recovery  BSL Blank Spike/LCS – Low Recovery  CC Continuing Calibration  CCH Continuing Calibration Verification – High Recovery  CL Continuing Calibration Verification – Low Recovery  DL Redundant Result – due to Dilution  EBL Equipment Blank Contamination  EMPC Estimated Possible Maximum Concentration  ESH Extraction Standard - High Recovery  ESL Extraction Standard - Low Recovery  FBL Field Blank Contamination  FD Field Duplicate  HT Holding Time  ICB Initial Calibration – Bad Linearity or Curve Function  ICH Initial Calibration – High Relative Response Factors  ICL Initial Calibration – Low Relative Response Factors  ISH Internal Standard – High Recovery  LD Lab Duplicate Reproducibility  LR Concentration Exceeds Linear Range  MBL Method Blank Contamination  MDP Matrix Spike/Matrix Spike Duplicate Precision  MI Matrix Spike and/or Matrix Spike Duplicate – High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  OT Other	%SOL	-
BD Blank Spike/Blank Spike Duplicate(LCS/LCSD) Precision  BRL Below Reporting Limit  BSH Blank Spike/LCS – High Recovery  BSL Blank Spike/LCS – Low Recovery  CC Continuing Calibration  CCH Continuing Calibration Verification – High Recovery  DL Redundant Result – due to Dilution  EBL Equipment Blank Contamination  EMPC Estimated Possible Maximum Concentration  ESH Extraction Standard - High Recovery  ESL Extraction Standard - Low Recovery  FBL Field Blank Contamination  FD Field Duplicate  HT Holding Time  ICB Initial Calibration – Bad Linearity or Curve Function  ICH Initial Calibration – High Relative Response Factors  ICL Initial Calibration – Low Relative Response Factors  ISH Internal Standard – Low Recovery  LD Lab Duplicate Reproducibility  LR Concentration Exceeds Linear Range  MBL Method Blank Contamination  MDP Matrix Spike/Matrix Spike Duplicate Precision  MI Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  OT Other	2C	Reproducibility
BL Below Reporting Limit  BSH Blank Spike/LCS – High Recovery  BSL Blank Spike/LCS – Low Recovery  CC Continuing Calibration  CCH Continuing Calibration Verification – High Recovery  CCL Continuing Calibration Verification – Low Recovery  DL Redundant Result – due to Dilution  EBL Equipment Blank Contamination  EMPC Estimated Possible Maximum Concentration  ESH Extraction Standard - High Recovery  ESL Extraction Standard - Low Recovery  FBL Field Blank Contamination  FD Field Duplicate  HT Holding Time  ICB Initial Calibration – Bad Linearity or Curve Function  ICH Initial Calibration – High Relative Response Factors  ICL Initial Calibration – Low Relative Response Factors  ISH Internal Standard – High Recovery  ISL Internal Standard – Low Recovery  LD Lab Duplicate Reproducibility  LR Concentration Exceeds Linear Range  MBL Method Blank Contamination  MDP Matrix Spike/Matrix Spike Duplicate Precision  MI Matrix interference obscuring the raw data  MSH Matrix Spike and/or Matrix Spike Duplicate – High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  OT Other	2S	tandem detectors
BSH Blank Spike/LCS – High Recovery  BSL Blank Spike/LCS – Low Recovery  CC Continuing Calibration  CCH Continuing Calibration Verification – High Recovery  CCL Continuing Calibration Verification – Low Recovery  DL Redundant Result – due to Dilution  EBL Equipment Blank Contamination  EMPC Estimated Possible Maximum Concentration  ESH Extraction Standard - High Recovery  ESL Extraction Standard - Low Recovery  FBL Field Blank Contamination  FD Field Duplicate  HT Holding Time  ICB Initial Calibration – Bad Linearity or Curve Function  ICH Initial Calibration – High Relative Response Factors  ICL Initial Calibration – Low Relative Response Factors  ISH Internal Standard – High Recovery  ISL Internal Standard – Low Recovery  LD Lab Duplicate Reproducibility  LR Concentration Exceeds Linear Range  MBL Method Blank Contamination  MDP Matrix Spike/Matrix Spike Duplicate Precision  MI Matrix interference obscuring the raw data  MSH Matrix Spike and/or Matrix Spike Duplicate – High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  OT Other	BD	
BSL Blank Spike/LCS – Low Recovery  CC Continuing Calibration  CCH Continuing Calibration Verification – High Recovery  CL Continuing Calibration Verification – Low Recovery  DL Redundant Result – due to Dilution  EBL Equipment Blank Contamination  EMPC Estimated Possible Maximum Concentration  ESH Extraction Standard - High Recovery  ESL Extraction Standard - Low Recovery  FBL Field Blank Contamination  FD Field Duplicate  HT Holding Time  ICB Initial Calibration – Bad Linearity or Curve Function  ICH Initial Calibration – High Relative Response Factors  ICL Initial Calibration – Low Relative Response Factors  ISH Internal Standard – High Recovery  LD Lab Duplicate Reproducibility  LR Concentration Exceeds Linear Range  MBL Method Blank Contamination  MDP Matrix Spike/Matrix Spike Duplicate Precision  MI Matrix interference obscuring the raw data  MSH Matrix Spike and/or Matrix Spike Duplicate – High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  OT Other	BRL	Below Reporting Limit
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HT Holding Time  ICB Initial Calibration – Bad Linearity or Curve Function  ICH Initial Calibration – High Relative Response Factors  ICL Initial Calibration – Low Relative Response Factors  ISH Internal Standard – High Recovery  ISL Internal Standard – Low Recovery  LD Lab Duplicate Reproducibility  LR Concentration Exceeds Linear Range  MBL Method Blank Contamination  MDP Matrix Spike/Matrix Spike Duplicate Precision  MI Matrix interference obscuring the raw data  MSH Matrix Spike and/or Matrix Spike Duplicate – High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  OT Other	FD	Field Duplicate
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LR Concentration Exceeds Linear Range  MBL Method Blank Contamination  MDP Matrix Spike/Matrix Spike Duplicate Precision  MI Matrix interference obscuring the raw data  MSH Matrix Spike and/or Matrix Spike Duplicate – High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  OT Other	ISL	Internal Standard – Low Recovery
MBL Method Blank Contamination  MDP Matrix Spike/Matrix Spike Duplicate Precision  MI Matrix interference obscuring the raw data  MSH Matrix Spike and/or Matrix Spike Duplicate — High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate — Low Recovery  OT Other	LD	Lab Duplicate Reproducibility
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MSH Matrix Spike and/or Matrix Spike Duplicate – High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  OT Other		
MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery OT Other		Matrix Spike and/or Matrix Spike Duplicate –
	MSL	Matrix Spike and/or Matrix Spike Duplicate –
PD Pesticide Degradation	OT	Other
	PD	Pesticide Degradation

Value	Description
RE	Redundant Result - due to Reanalysis or Reextraction
SD	Serial Dilution Reproducibility
SSH	Spiked Surrogate – High Recovery
SSL	Spiked Surrogate – Low Recovery
TBL	Trip Blank Contamination
TN	Tune

MEMORANDUM CH2MHILL

# **Data Validation Summary**

## **CTO-222 Little Creek**

TO: Anita Dodson/VBO

Megan Morrison/WDC

FROM: Tiffany McGlynn/GNV

CC: Herb Kelly/GNV

DATE: November 8, 2010

## **Introduction**

The following data validation report discusses the data validation process and findings for Empirical Laboratories, LLC for SDG 1009060.

Samples were analyzed using the following analytical methods:

- SW6010B Total Metals
- SEM Metals
- SW7470A/7471 Mercury

The samples included in this SDG are listed in the table below.

Sample Name	Lab Sample ID
LW03-SD541-00-10C	1009060-01
LW03-SD541-00-10C	1009060-02
LW03-SD547-00-10C	1009060-03
LW03-SD547-00-10C	1009060-04
LW03-SD547P-00-10C	1009060-05
LW03-SD553-00-10C	1009060-06
LW03-SD553-00-10C	1009060-07
LW03-SD559-00-10C	1009060-08
LW03-SD559-00-10C	1009060-09
LW03-SD552-00-10C	1009060-10
LW03-SD552-00-10C	1009060-11

Sample Name	Lab Sample ID
LW03-SD558-00-10C	1009060-12
LW03-SD558-00-10C	1009060-13
LW03-SD564-00-10C	1009060-14
LW03-SD564-00-10C	1009060-15
LW03-SD551-00-10C	1009060-16
LW03-SD551-00-10C	1009060-17
LW03-SD557-00-10C	1009060-18
LW03-SD557-00-10C	1009060-19
LW03-SD563-00-10C	1009060-20
LW03-SD563-00-10C	1009060-21
LW03-SD550-00-10C	1009060-22
LW03-SD550-00-10C	1009060-23
LW03-SD556-00-10C	1009060-24
LW03-SD556-00-10C	1009060-25
LW03-SD556P-00-10C	1009060-26
LW03-SD562-00-10C	1009060-27
LW03-SD562-00-10C	1009060-28
LW03-SD567-00-10C	1009060-29
LW03-SD567-00-10C	1009060-30
LW03-SD571-00-10C	1009060-31
LW03-SD571-00-10C	1009060-32
LW03-EB01-090810	1009060-33

### **Data Evaluation**

Data was evaluated in accordance with the analytical methods and with the criteria found in the following guidance documents: National Functional Guidelines for Inorganic Methods Data Review (EPA 2004) and Region III Modifications for Inorganic Data Review (EPA 1993), as applicable. The samples were evaluated based on the following criteria:

- Data Completeness
- Technical Holding Times
- Initial/Continuing Calibrations
- Blanks
- Internal Standards
- Serial Dilutions
- Laboratory Control Samples

- Matrix Spike Recoveries
- Field Duplicates
- Identification/Quantitation
- Reporting Limits

## Overall Evaluation of Data/Potential Usability Issues

Specific details regarding qualification of the data are addressed in the sections below. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte, the validator has chosen the qualifier that best indicates possible bias in the results and qualified these data accordingly.

#### **Data Completeness**

The SDG was received complete and intact. Resubmissions were not required.

#### **Technical Holding Times**

According to the chain of custody records, sampling was performed on 9/7/10 and 9/8/10. Samples were received at the laboratory on 9/9/10. All sample preparation analysis was performed within holding time requirements.

#### Calibration

Continuing calibration was above criteria at 111% for CCV3 and CCV4 for copper in total metals. For SEM metals, the continuing calibration for zinc was below criteria, CCV5 89.5% and CCV6 87.5%. Criteria for continuing calibration is 90-110%. Affected data are summarized in **Attachment 1**.

#### **Blanks**

Various compounds were detected in the equipment blank, method blanks, and calibration blanks for both total metals and SEM metals as indicated below. Affected data are summarized in **Attachment 1**.

Lab case narrative noted nickel and zinc results in the equipment blank were qualified as Z-01 because sample containers were contaminated with acid containing nickel and zinc.

				Action	
Blank ID	Compound	Conc.	Units	Level	Units
LW03-EB01-090810	Copper	1.83	ug/L	0.4575	mg/kg
LW03-EB01-090810	Lead	1.11	ug/L	0.2775	mg/kg
LW03-EB01-090810	Nickel	64.6	ug/L	16.15	mg/kg
LW03-EB01-090810	Tin	1.4	ug/L	0.35	mg/kg
LW03-EB01-090810	Zinc	8.61	ug/L	2.1525	mg/kg
0J27402-CCB4	Zinc	5.27	ug/L	1.3175	mg/kg
0l23010-BLK1 SEM	Cadmium	0.0169	umoles/g	0.0845	umoles/g
0l23010-BLK1 SEM	Copper	0.0123	umoles/g	0.0615	umoles/g
0l23010-BLK1 SEM	Lead	0.0008	umoles/g	0.004	umoles/g
0J01005	Lead	0.000694	umoles/g	0.00347	umoles/g
0l23010-BLK1 SEM	Nickel	0.0226	umoles/g	0.113	umoles/g
0l23010-BLK1 SEM	Silver	0.00383	umoles/g	0.01915	umoles/g
0J01005	Zinc	0.00242	umoles/g	0.0121	umoles/g

## Conclusion

These data can be used in the project decision-making process as qualified by the data quality evaluation process.

Please do not hesitate to contact us about this validation report.

Sincerely,

Tiffany McGlynn

Tillary Willya

#### **Qualification Flags**

Exclude More appropriate data exist for this analyte.

R Data were rejected for use.

Analyte not detected, quantitation limit is potentially biased

UL low.

UJ Analyte not detected, estimated quantitation limit.

U Analyte not detected.

Not detected substantially above the level reported in

B laboratory or field blanks.

L Analyte present, estimated value potentially biased low.
K Analyte present, estimated value potentially biased high.

Analyte identification presumptive; no second column analysis

N performed or GC/MS tentative identification.

J Analyte present, estimated value.

Analysis indicates the presence of an analyte that was

"tentatively identified" and the associated value represents its

NJ approximate concentration.

Placeholder for calculating quality control issues that do not

None require flagging.

Analyte was detected at a concentration greater than the

= quantitation limit.

### **Qualifier Code Reference**

## SOL High Moisture content    C	Value	Description
2C Second Column – Poor Dual Column Reproducibility  2S Second Source – Bad reproducibility between tandem detectors  BD Blank Spike/Blank Spike Duplicate(LCS/LCSD) Precision  BRL Below Reporting Limit  BSH Blank Spike/LCS – High Recovery  BSL Blank Spike/LCS – Low Recovery  CC Continuing Calibration  CCH Continuing Calibration Verification – High Recovery  DL Redundant Result – due to Dilution  EBL Equipment Blank Contamination  EMPC Estimated Possible Maximum Concentration  ESH Extraction Standard - High Recovery  ESL Extraction Standard - Low Recovery  FBL Field Blank Contamination  FD Field Duplicate  HT Holding Time  ICB Initial Calibration – Bad Linearity or Curve Function  ICH Initial Calibration – High Relative Response Factors  ICL Initial Calibration – Low Relative Response Factors  ISH Internal Standard – High Recovery  LD Lab Duplicate Reproducibility  LR Concentration Exceeds Linear Range  MBL Method Blank Contamination  MDP Matrix Spike/Matrix Spike Duplicate Precision  MI Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  OT Other		Description
Reproducibility  Second Source – Bad reproducibility between tandem detectors  BD Blank Spike/Blank Spike Duplicate (LCS/LCSD) Precision  BRL Below Reporting Limit  BSH Blank Spike/LCS – High Recovery  BSL Blank Spike/LCS – Low Recovery  CC Continuing Calibration  CCH Continuing Calibration Verification – High Recovery  CL Continuing Calibration Verification – Low Recovery  DL Redundant Result – due to Dilution  EBL Equipment Blank Contamination  EMPC Estimated Possible Maximum Concentration  ESH Extraction Standard - High Recovery  ESL Extraction Standard - Low Recovery  FBL Field Blank Contamination  FD Field Duplicate  HT Holding Time  ICB Initial Calibration – Bad Linearity or Curve Function  ICH Initial Calibration – High Relative Response Factors  ICL Initial Calibration – Low Relative Response Factors  ISH Internal Standard – High Recovery  LD Lab Duplicate Reproducibility  LR Concentration Exceeds Linear Range  MBL Method Blank Contamination  MDP Matrix Spike/Matrix Spike Duplicate Precision  MI Matrix Spike and/or Matrix Spike Duplicate – High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  OT Other	%SOL	-
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BSH Blank Spike/LCS – High Recovery  BSL Blank Spike/LCS – Low Recovery  CC Continuing Calibration  CCH Continuing Calibration Verification – High Recovery  CCL Continuing Calibration Verification – Low Recovery  DL Redundant Result – due to Dilution  EBL Equipment Blank Contamination  EMPC Estimated Possible Maximum Concentration  ESH Extraction Standard - High Recovery  ESL Extraction Standard - Low Recovery  FBL Field Blank Contamination  FD Field Duplicate  HT Holding Time  ICB Initial Calibration – Bad Linearity or Curve Function  ICH Initial Calibration – High Relative Response Factors  ICL Initial Calibration – Low Relative Response Factors  ISH Internal Standard – High Recovery  ISL Internal Standard – Low Recovery  LD Lab Duplicate Reproducibility  LR Concentration Exceeds Linear Range  MBL Method Blank Contamination  MDP Matrix Spike/Matrix Spike Duplicate Precision  MI Matrix interference obscuring the raw data  MSH Matrix Spike and/or Matrix Spike Duplicate – High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  OT Other	BD	
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CC Continuing Calibration  CCH Continuing Calibration Verification – High Recovery  CCL Continuing Calibration Verification – Low Recovery  DL Redundant Result – due to Dilution  EBL Equipment Blank Contamination  EMPC Estimated Possible Maximum Concentration  ESH Extraction Standard - High Recovery  ESL Extraction Standard - Low Recovery  FBL Field Blank Contamination  FD Field Duplicate  HT Holding Time  ICB Initial Calibration – Bad Linearity or Curve Function  ICH Initial Calibration – High Relative Response Factors  ICL Initial Calibration – Low Relative Response Factors  ISH Internal Standard – High Recovery  ISL Internal Standard – High Recovery  LD Lab Duplicate Reproducibility  LR Concentration Exceeds Linear Range  MBL Method Blank Contamination  MDP Matrix Spike/Matrix Spike Duplicate Precision  MI Matrix interference obscuring the raw data  MSH Matrix Spike and/or Matrix Spike Duplicate – High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  OT Other	BSH	Blank Spike/LCS – High Recovery
CCH Continuing Calibration Verification – High Recovery  CCL Continuing Calibration Verification – Low Recovery  DL Redundant Result – due to Dilution  EBL Equipment Blank Contamination  EMPC Estimated Possible Maximum Concentration  ESH Extraction Standard - High Recovery  ESL Extraction Standard - Low Recovery  FBL Field Blank Contamination  FD Field Duplicate  HT Holding Time  ICB Initial Calibration – Bad Linearity or Curve Function  ICH Initial Calibration – High Relative Response Factors  ICL Initial Calibration – Low Relative Response Factors  ISH Internal Standard – High Recovery  ISL Internal Standard – Low Recovery  LD Lab Duplicate Reproducibility  LR Concentration Exceeds Linear Range  MBL Method Blank Contamination  MDP Matrix Spike/Matrix Spike Duplicate Precision  MI Matrix interference obscuring the raw data  MSH Matrix Spike and/or Matrix Spike Duplicate – High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  OT Other	BSL	Blank Spike/LCS – Low Recovery
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ESL Extraction Standard - Low Recovery  FBL Field Blank Contamination  FD Field Duplicate  HT Holding Time  ICB Initial Calibration – Bad Linearity or Curve Function  ICH Initial Calibration – High Relative Response Factors  ICL Initial Calibration – Low Relative Response Factors  ISH Internal Standard – High Recovery  ISL Internal Standard – Low Recovery  LD Lab Duplicate Reproducibility  LR Concentration Exceeds Linear Range  MBL Method Blank Contamination  MDP Matrix Spike/Matrix Spike Duplicate Precision  MI Matrix interference obscuring the raw data  MSH Matrix Spike and/or Matrix Spike Duplicate – High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  OT Other	EMPC	Estimated Possible Maximum Concentration
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FD Field Duplicate  HT Holding Time  ICB Initial Calibration – Bad Linearity or Curve Function  ICH Initial Calibration – High Relative Response Factors  ICL Initial Calibration – Low Relative Response Factors  ISH Internal Standard – High Recovery  ISL Internal Standard – Low Recovery  LD Lab Duplicate Reproducibility  LR Concentration Exceeds Linear Range  MBL Method Blank Contamination  MDP Matrix Spike/Matrix Spike Duplicate Precision  MI Matrix interference obscuring the raw data  MSH Matrix Spike and/or Matrix Spike Duplicate – High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  OT Other	ESL	Extraction Standard - Low Recovery
HT Holding Time  ICB Initial Calibration – Bad Linearity or Curve Function  ICH Initial Calibration – High Relative Response Factors  ICL Initial Calibration – Low Relative Response Factors  ISH Internal Standard – High Recovery  ISL Internal Standard – Low Recovery  LD Lab Duplicate Reproducibility  LR Concentration Exceeds Linear Range  MBL Method Blank Contamination  MDP Matrix Spike/Matrix Spike Duplicate Precision  MI Matrix interference obscuring the raw data  MSH Matrix Spike and/or Matrix Spike Duplicate – High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  OT Other	FBL	Field Blank Contamination
HT Holding Time  ICB Initial Calibration – Bad Linearity or Curve Function  ICH Initial Calibration – High Relative Response Factors  ICL Initial Calibration – Low Relative Response Factors  ISH Internal Standard – High Recovery  ISL Internal Standard – Low Recovery  LD Lab Duplicate Reproducibility  LR Concentration Exceeds Linear Range  MBL Method Blank Contamination  MDP Matrix Spike/Matrix Spike Duplicate Precision  MI Matrix interference obscuring the raw data  MSH Matrix Spike and/or Matrix Spike Duplicate – High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  OT Other	FD	Field Duplicate
ICB Initial Calibration – Bad Linearity or Curve Function  ICH Initial Calibration – High Relative Response Factors  ICL Initial Calibration – Low Relative Response Factors  ISH Internal Standard – High Recovery  ISL Internal Standard – Low Recovery  LD Lab Duplicate Reproducibility  LR Concentration Exceeds Linear Range  MBL Method Blank Contamination  MDP Matrix Spike/Matrix Spike Duplicate Precision  MI Matrix interference obscuring the raw data  MSH Matrix Spike and/or Matrix Spike Duplicate – High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  OT Other	HT	
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ISL Internal Standard – Low Recovery  LD Lab Duplicate Reproducibility  LR Concentration Exceeds Linear Range  MBL Method Blank Contamination  MDP Matrix Spike/Matrix Spike Duplicate Precision  MI Matrix interference obscuring the raw data  MSH Matrix Spike and/or Matrix Spike Duplicate – High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  OT Other	ICL	
LD Lab Duplicate Reproducibility  LR Concentration Exceeds Linear Range  MBL Method Blank Contamination  MDP Matrix Spike/Matrix Spike Duplicate Precision  MI Matrix interference obscuring the raw data  MSH Matrix Spike and/or Matrix Spike Duplicate —  High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate —  Low Recovery  OT Other	ISH	Internal Standard – High Recovery
LR Concentration Exceeds Linear Range  MBL Method Blank Contamination  MDP Matrix Spike/Matrix Spike Duplicate Precision  MI Matrix interference obscuring the raw data  MSH Matrix Spike and/or Matrix Spike Duplicate – High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  OT Other	ISL	Internal Standard – Low Recovery
MBL Method Blank Contamination  MDP Matrix Spike/Matrix Spike Duplicate Precision  MI Matrix interference obscuring the raw data  MSH Matrix Spike and/or Matrix Spike Duplicate — High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate — Low Recovery  OT Other	LD	Lab Duplicate Reproducibility
MDP Matrix Spike/Matrix Spike Duplicate Precision  MI Matrix interference obscuring the raw data  MSH Matrix Spike and/or Matrix Spike Duplicate — High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate — Low Recovery  OT Other	LR	Concentration Exceeds Linear Range
MI Matrix interference obscuring the raw data  MSH Matrix Spike and/or Matrix Spike Duplicate – High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  OT Other	MBL	Method Blank Contamination
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MSH Matrix Spike and/or Matrix Spike Duplicate – High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  OT Other		
MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery OT Other		Matrix Spike and/or Matrix Spike Duplicate –
	MSL	Matrix Spike and/or Matrix Spike Duplicate –
PD Pesticide Degradation	OT	Other
	PD	Pesticide Degradation

Value	Description
RE	Redundant Result - due to Reanalysis or Reextraction
SD	Serial Dilution Reproducibility
SSH	Spiked Surrogate – High Recovery
SSL	Spiked Surrogate – Low Recovery
TBL	Trip Blank Contamination
TN	Tune

MEMORANDUM CH2MHILL

## **Data Validation Summary**

## **CTO-222 Little Creek**

TO: Anita Dodson/VBO

Megan Morrison/WDC

FROM: Tiffany McGlynn/GNV

CC: Herb Kelly/GNV

DATE: November 8, 2010

## **Introduction**

The following data validation report discusses the data validation process and findings for Empirical Laboratories, LLC for SDG 1009086.

Samples were analyzed using the following analytical methods:

- SW6010B Total Metals
- SEM Metals
- SW7470A/7471 Mercury

The samples included in this SDG are listed in the table below.

Sample Name	Lab Sample ID
LW03-SD523-00-10C	1009086-01
LW03-SD523-00-10C	1009086-02
LW03-SD509-00-10C	1009086-03
LW03-SD509-00-10C	1009086-04
LW03-SD516-00-10C	1009086-05
LW03-SD516-00-10C	1009086-06
LW03-SD529-00-10C	1009086-07
LW03-SD529-00-10C	1009086-08
LW03-SD548-00-10C	1009086-09
LW03-SD548-00-10C	1009086-10
LW03-SD549-00-10C	1009086-11

Sample Name	Lab Sample ID
LW03-SD549-00-10C	1009086-12
LW03-SD555-00-10C	1009086-13
LW03-SD555-00-10C	1009086-14
LW03-SD515-00-10C	1009086-15
LW03-SD515-00-10C	1009086-16
LW03-SD522-00-10C	1009086-17
LW03-SD522-00-10C	1009086-18
LW03-SD528-00-10C	1009086-19
LW03-SD528-00-10C	1009086-20
LW03-SD506-00-10C	1009086-21
LW03-SD506-00-10C	1009086-22
LW03-SD506P-00-10C	1009086-23
LW03-SD513-00-10C	1009086-24
LW03-SD513-00-10C	1009086-25
LW03-SD526-00-10C	1009086-26
LW03-SD526-00-10C	1009086-27
LW03-SD526P-00-10C	1009086-28
LW03-SD520-00-10C	1009086-29
LW03-SD520-00-10C	1009086-30
LW03-SD514-00-10C	1009086-31
LW03-SD514-00-10C	1009086-32
LW03-SD514P-00-10C	1009086-33
LW03-SD508-00-10C	1009086-34
LW03-SD508-00-10C	1009086-35
LW07-H1-SD401-00-10C	1009086-36
LW07-H1-SD401-00-10C	1009086-37
LW07-K1-SD401-00-10C	1009086-38
LW07-K1-SD401-00-10C	1009086-39
LW07-M1-SD401-00-10C	1009086-40
LW07-M1-SD401-00-10C	1009086-41
LW07-SD404-00-10C	1009086-42
LW07-SD404-00-10C	1009086-43
LW07-EB01-091010	1009086-44

## **Data Evaluation**

Data was evaluated in accordance with the analytical methods and with the criteria found in the following guidance documents: National Functional Guidelines for Inorganic Methods Data

Review (EPA 2004) and Region III Modifications for Inorganic Data Review (EPA 1993), as applicable. The samples were evaluated based on the following criteria:

- Data Completeness
- Technical Holding Times
- Initial/Continuing Calibrations
- Blanks
- Internal Standards
- Serial Dilutions
- Laboratory Control Samples
- Matrix Spike Recoveries
- Field Duplicates
- Identification/Quantitation
- Reporting Limits

## Overall Evaluation of Data/Potential Usability Issues

Specific details regarding qualification of the data are addressed in the sections below. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte, the validator has chosen the qualifier that best indicates possible bias in the results and qualified these data accordingly.

### **Data Completeness**

The SDG was received complete and intact. Resubmissions were not required.

#### **Technical Holding Times**

According to the chain of custody records, sampling was performed on 9/9/10 and 9/10/10. Samples were received at the laboratory on 9/11/10 and 9/13/10. All sample preparation analysis was performed within holding time requirements.

#### Calibration

Continuing calibration was above criteria for CCV3 (111%) and CCV4 (111%) for copper in total metals. For SEM metals, continuing calibration was below criteria for CCV5 (89.5%) and CCV6 (87.5%). Criteria for continuing calibration is 90-110%. Affected data are summarized in **Attachment 1**.

#### **Blanks**

Various compounds were detected in the equipment blank, and method blanks for both total metals and SEM metals as indicated below. Affected data are summarized in **Attachment 1.** 

Lab case narrative noted nickel and zinc results in the equipment blank were qualified as Z-01 because sample containers were contaminated with acid containing nickel and zinc.

				Action	
Blank ID	Compound	Conc.	Units	Level	Units
LW07-EB01-091010	Copper	1.83	ug/l	0.4575	mg/kg
LW07-EB01-091010	Copper	1.55	ug/l	0.3875	mg/kg
LW07-EB01-091010	Lead	1.11	ug/l	0.2775	mg/kg
LW07-EB01-091010	Lead	1.21	ug/l	0.3025	mg/kg
LW07-EB01-091010	Nickel	64.6	ug/l	16.15	mg/kg
MB	Tin	1.4	mg/kg	7	mg/kg
MB	Tin	1.45	mg/kg	7.25	mg/kg
MB	Tin	1.41	mg/kg	7.05	mg/kg
LW07-EB01-091010	Zinc	8.61	ug/l	2.1525	mg/kg
LW07-EB01-091010	Zinc	7.58	ug/l	1.895	mg/kg
0J27402-CCB4	Zinc	5.27	ug/l	1.3175	mg/kg
MB	Lead	0.000694	umoles/g	0.00347	umoles/g
MB	Lead	0.00126	umoles/g	0.0063	umoles/g
MB	Zinc	0.00242	umoles/g	0.0121	umoles/g

## Matrix Spike/Spike Duplicate

MS/MSD recovery was below criteria for lead affecting samples LW07-SD529-00-10C and LW07-SD404-00-10C. Recoveries affecting sample LW07-SD555-00-10C were copper and lead which recovered below criteria whereas zinc recovered above criteria. Affected data are summarized in **Attachment 1.** 

## **Serial Dilution**

Serial dilution did not meet criteria for nickel in sample LW07-SD555-00-10C with an RPD of 42%. Affected data are summarized in **Attachment 1**.

# **Field Duplicate Precision**

Field duplicate precision did not meet criteria for zinc in samples LW03-SD506-00-10C and LW03-SD506P-00-10C. The RPD for zinc was 57% (limit is 30% RPD). Affected data are summarized in **Attachment 1.** 

# Conclusion

These data can be used in the project decision-making process as qualified by the data quality evaluation process.

Please do not hesitate to contact us about this validation report.

Sincerely,

Tiffany McGlynn

Tillary Willya

## **Qualification Flags**

Exclude More appropriate data exist for this analyte.

R Data were rejected for use.

Analyte not detected, quantitation limit is potentially biased

UL low.

UJ Analyte not detected, estimated quantitation limit.

U Analyte not detected.

Not detected substantially above the level reported in

B laboratory or field blanks.

L Analyte present, estimated value potentially biased low.
K Analyte present, estimated value potentially biased high.

Analyte identification presumptive; no second column analysis

N performed or GC/MS tentative identification.

J Analyte present, estimated value.

Analysis indicates the presence of an analyte that was

"tentatively identified" and the associated value represents its

NJ approximate concentration.

Placeholder for calculating quality control issues that do not

None require flagging.

Analyte was detected at a concentration greater than the

guantitation limit.

# **Qualifier Code Reference**

Value	Description
value	Description
%SOL	High Moisture content
2C	Second Column – Poor Dual Column Reproducibility
2S	Second Source – Bad reproducibility between tandem detectors
BD	Blank Spike/Blank Spike Duplicate(LCS/LCSD) Precision
BRL	Below Reporting Limit
BSH	Blank Spike/LCS – High Recovery
BSL	Blank Spike/LCS – Low Recovery
СС	Continuing Calibration
ССН	Continuing Calibration Verification – High Recovery
CCL	Continuing Calibration Verification – Low Recovery
DL	Redundant Result – due to Dilution
EBL	Equipment Blank Contamination
EMPC	Estimated Possible Maximum Concentration
ESH	Extraction Standard - High Recovery
ESL	Extraction Standard - Low Recovery
FBL	Field Blank Contamination
FD	Field Duplicate
HT	Holding Time
ICB	Initial Calibration – Bad Linearity or Curve Function
ICH	Initial Calibration – High Relative Response Factors
ICL	Initial Calibration – Low Relative Response Factors
ISH	Internal Standard – High Recovery
ISL	Internal Standard – Low Recovery
LD	Lab Duplicate Reproducibility
LR	Concentration Exceeds Linear Range
MBL	Method Blank Contamination
MDP	Matrix Spike/Matrix Spike Duplicate Precision
MI	Matrix interference obscuring the raw data
MSH	Matrix Spike and/or Matrix Spike Duplicate – High Recovery
MSL	Matrix Spike and/or Matrix Spike Duplicate – Low Recovery
ОТ	Other
PD	Pesticide Degradation

Value	Description
RE	Redundant Result - due to Reanalysis or Reextraction
SD	Serial Dilution Reproducibility
SSH	Spiked Surrogate – High Recovery
SSL	Spiked Surrogate – Low Recovery
TBL	Trip Blank Contamination
TN	Tune

MEMORANDUM CH2MHILL

# **Data Validation Summary**

# **CTO-222 Little Creek**

TO: Anita Dodson/VBO

Megan Morrison/WDC

FROM: Tiffany McGlynn/GNV

CC: Herb Kelly/GNV

DATE: November 8, 2010

# **Introduction**

The following data validation report discusses the data validation process and findings for Empirical Laboratories, LLC for SDG 1009095.

Samples were analyzed using the following analytical methods:

- SW6010B Total Metals
- SEM Metals
- SW7470A/7471 Mercury

The samples included in this SDG are listed in the table below.

Sample Name	Lab Sample ID
LW07-SD403-00-10C	1009095-01
LW07-SD403-00-10C	1009095-02
LW07-L2-SD401-00-10C	1009095-03
LW07-L2-SD401-00-10C	1009095-04
LW07-K3-SD401-00-10C	1009095-05
LW07-K3-SD401-00-10C	1009095-06
LW07-SD402-00-10C	1009095-07
LW07-SD402-00-10C	1009095-08
LW07-SD402P-00-10C	1009095-09
LW07-K4-SD401-00-10C	1009095-10
LW07-K4-SD401-00-10C	1009095-11

Sample Name	Lab Sample ID
LW07-L5-SD401-00-10C	1009095-12
LW07-L5-SD401-00-10C	1009095-13
LW07-K5-SD401-00-10C	1009095-14
LW07-K5-SD401-00-10C	1009095-15
LW07-SD401-00-10C	1009095-16
LW07-SD401-00-10C	1009095-17
LW07-J4-SD401-00-10C	1009095-18
LW07-J4-SD401-00-10C	1009095-19
LW07-H3-SD401-00-10C	1009095-20
LW07-H3-SD401-00-10C	1009095-21
LW07-F3-SD401-00-10C	1009095-22
LW07-F3-SD401-00-10C	1009095-23
LW07-D5-SD401-00-10C	1009095-24
LW07-D5-SD401-00-10C	1009095-25
LW07-B7-SD401-00-10C	1009095-26
LW07-B7-SD401-00-10C	1009095-27
LW07-F5-SD401-00-10C-01	1009095-28
LW07-B5-SD401-00-10C	1009095-30
LW07-B5-SD401-00-10C	1009095-31
LW07-B5-SD401P-00-10C	1009095-32
LW03-SD521-00-10C	1009095-33
LW03-SD521-00-10C	1009095-34
LW03-SD527-00-10C	1009095-35
LW03-SD527-00-10C	1009095-36
LW07-F5-SD401-00-10C-01	1009095-37

## **Data Evaluation**

Data was evaluated in accordance with the analytical methods and with the criteria found in the following guidance documents: National Functional Guidelines for Inorganic Methods Data Review (EPA 2004) and Region III Modifications for Inorganic Data Review (EPA 1993), as applicable. The samples were evaluated based on the following criteria:

- Data Completeness
- Technical Holding Times
- Initial/Continuing Calibrations
- Blanks

- Internal Standards
- Serial Dilutions
- Laboratory Control Samples
- Matrix Spike Recoveries
- Field Duplicates
- Identification/Quantitation
- Reporting Limits

## Overall Evaluation of Data/Potential Usability Issues

Specific details regarding qualification of the data are addressed in the sections below. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte, the validator has chosen the qualifier that best indicates possible bias in the results and qualified these data accordingly.

## **Data Completeness**

The SDG was received complete and intact. Resubmissions were not required.

#### **Technical Holding Times**

According to the chain of custody records, sampling was performed 9/11/10 and 9/12/10. Samples were received at the laboratory on 9/14/10. All sample preparation analysis was performed within holding time requirements.

#### **Field Duplicate Precision**

Field duplicate and native did not meet criteria for LW07-SD402-00-10C and LW07-SD402P-00-10C. Precision between the native and field dupcliate were 46% (limit is 30%). Affected data are summarized in table below.

Sample ID	Compound	Q Flag	Qual Code
LW07-SD402-00-10C	Tin	J	FD
LW07-SD402P-00-10C	Tin	J	FD

# Conclusion

These data can be used in the project decision-making process as qualified by the data quality evaluation process.

Please do not hesitate to contact us about this validation report.

Sincerely,

Tiffany McGlynn

Jiffany Millya

## **Qualification Flags**

Exclude More appropriate data exist for this analyte.

R Data were rejected for use.

Analyte not detected, quantitation limit is potentially biased

UL low.

UJ Analyte not detected, estimated quantitation limit.

U Analyte not detected.

Not detected substantially above the level reported in

B laboratory or field blanks.

L Analyte present, estimated value potentially biased low.
K Analyte present, estimated value potentially biased high.

Analyte identification presumptive; no second column analysis

N performed or GC/MS tentative identification.

J Analyte present, estimated value.

Analysis indicates the presence of an analyte that was

"tentatively identified" and the associated value represents its

NJ approximate concentration.

Placeholder for calculating quality control issues that do not

None require flagging.

Analyte was detected at a concentration greater than the

guantitation limit.

# **Qualifier Code Reference**

## SOL High Moisture content    C	Value	Description
2C Second Column – Poor Dual Column Reproducibility  2S Second Source – Bad reproducibility between tandem detectors  BD Blank Spike/Blank Spike Duplicate(LCS/LCSD) Precision  BRL Below Reporting Limit  BSH Blank Spike/LCS – High Recovery  BSL Blank Spike/LCS – Low Recovery  CC Continuing Calibration  CCH Continuing Calibration Verification – High Recovery  DL Redundant Result – due to Dilution  EBL Equipment Blank Contamination  EMPC Estimated Possible Maximum Concentration  ESH Extraction Standard - High Recovery  ESL Extraction Standard - Low Recovery  FBL Field Blank Contamination  FD Field Duplicate  HT Holding Time  ICB Initial Calibration – Bad Linearity or Curve Function  ICH Initial Calibration – High Relative Response Factors  ICL Initial Calibration – Low Relative Response Factors  ISH Internal Standard – High Recovery  LD Lab Duplicate Reproducibility  LR Concentration Exceeds Linear Range  MBL Method Blank Contamination  MDP Matrix Spike/Matrix Spike Duplicate Precision  MI Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  OT Other		Description
Reproducibility  Second Source – Bad reproducibility between tandem detectors  BD Blank Spike/Blank Spike Duplicate (LCS/LCSD) Precision  BRL Below Reporting Limit  BSH Blank Spike/LCS – High Recovery  BSL Blank Spike/LCS – Low Recovery  CC Continuing Calibration  CCH Continuing Calibration Verification – High Recovery  CL Continuing Calibration Verification – Low Recovery  DL Redundant Result – due to Dilution  EBL Equipment Blank Contamination  EMPC Estimated Possible Maximum Concentration  ESH Extraction Standard - High Recovery  ESL Extraction Standard - Low Recovery  FBL Field Blank Contamination  FD Field Duplicate  HT Holding Time  ICB Initial Calibration – Bad Linearity or Curve Function  ICH Initial Calibration – High Relative Response Factors  ICL Initial Calibration – Low Relative Response Factors  ISH Internal Standard – High Recovery  LD Lab Duplicate Reproducibility  LR Concentration Exceeds Linear Range  MBL Method Blank Contamination  MDP Matrix Spike/Matrix Spike Duplicate Precision  MI Matrix Spike and/or Matrix Spike Duplicate – High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  OT Other	%SOL	-
BD Blank Spike/Blank Spike Duplicate(LCS/LCSD) Precision  BRL Below Reporting Limit  BSH Blank Spike/LCS – High Recovery  BSL Blank Spike/LCS – Low Recovery  CC Continuing Calibration  CCH Continuing Calibration Verification – High Recovery  DL Redundant Result – due to Dilution  EBL Equipment Blank Contamination  EMPC Estimated Possible Maximum Concentration  ESH Extraction Standard - High Recovery  ESL Extraction Standard - Low Recovery  FBL Field Blank Contamination  FD Field Duplicate  HT Holding Time  ICB Initial Calibration – Bad Linearity or Curve Function  ICH Initial Calibration – High Relative Response Factors  ICL Initial Calibration – Low Relative Response Factors  ISH Internal Standard – Low Recovery  LD Lab Duplicate Reproducibility  LR Concentration Exceeds Linear Range  MBL Method Blank Contamination  MDP Matrix Spike/Matrix Spike Duplicate Precision  MI Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  OT Other	2C	Reproducibility
BL Below Reporting Limit  BSH Blank Spike/LCS – High Recovery  BSL Blank Spike/LCS – Low Recovery  CC Continuing Calibration  CCH Continuing Calibration Verification – High Recovery  CCL Continuing Calibration Verification – Low Recovery  DL Redundant Result – due to Dilution  EBL Equipment Blank Contamination  EMPC Estimated Possible Maximum Concentration  ESH Extraction Standard - High Recovery  ESL Extraction Standard - Low Recovery  FBL Field Blank Contamination  FD Field Duplicate  HT Holding Time  ICB Initial Calibration – Bad Linearity or Curve Function  ICH Initial Calibration – High Relative Response Factors  ICL Initial Calibration – Low Relative Response Factors  ISH Internal Standard – High Recovery  ISL Internal Standard – Low Recovery  LD Lab Duplicate Reproducibility  LR Concentration Exceeds Linear Range  MBL Method Blank Contamination  MDP Matrix Spike/Matrix Spike Duplicate Precision  MI Matrix interference obscuring the raw data  MSH Matrix Spike and/or Matrix Spike Duplicate – High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  OT Other	2S	tandem detectors
BSH Blank Spike/LCS – High Recovery  BSL Blank Spike/LCS – Low Recovery  CC Continuing Calibration  CCH Continuing Calibration Verification – High Recovery  CCL Continuing Calibration Verification – Low Recovery  DL Redundant Result – due to Dilution  EBL Equipment Blank Contamination  EMPC Estimated Possible Maximum Concentration  ESH Extraction Standard - High Recovery  ESL Extraction Standard - Low Recovery  FBL Field Blank Contamination  FD Field Duplicate  HT Holding Time  ICB Initial Calibration – Bad Linearity or Curve Function  ICH Initial Calibration – High Relative Response Factors  ICL Initial Calibration – Low Relative Response Factors  ISH Internal Standard – High Recovery  ISL Internal Standard – Low Recovery  LD Lab Duplicate Reproducibility  LR Concentration Exceeds Linear Range  MBL Method Blank Contamination  MDP Matrix Spike/Matrix Spike Duplicate Precision  MI Matrix interference obscuring the raw data  MSH Matrix Spike and/or Matrix Spike Duplicate – High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  OT Other	BD	
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CCL Continuing Calibration Verification – Low Recovery  DL Redundant Result – due to Dilution  EBL Equipment Blank Contamination  EMPC Estimated Possible Maximum Concentration  ESH Extraction Standard - High Recovery  ESL Extraction Standard - Low Recovery  FBL Field Blank Contamination  FD Field Duplicate  HT Holding Time  ICB Initial Calibration – Bad Linearity or Curve Function  ICH Initial Calibration – High Relative Response Factors  ICL Initial Calibration – Low Relative Response Factors  ISH Internal Standard – High Recovery  ISL Internal Standard – Low Recovery  LD Lab Duplicate Reproducibility  LR Concentration Exceeds Linear Range  MBL Method Blank Contamination  MDP Matrix Spike/Matrix Spike Duplicate Precision  MI Matrix interference obscuring the raw data  MSH Matrix Spike and/or Matrix Spike Duplicate – High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  OT Other	CC	Continuing Calibration
DL Redundant Result – due to Dilution  EBL Equipment Blank Contamination  EMPC Estimated Possible Maximum Concentration  ESH Extraction Standard - High Recovery  ESL Extraction Standard - Low Recovery  FBL Field Blank Contamination  FD Field Duplicate  HT Holding Time  ICB Initial Calibration – Bad Linearity or Curve Function  ICH Initial Calibration – High Relative Response Factors  ICL Initial Calibration – Low Relative Response Factors  ISH Internal Standard – High Recovery  ISL Internal Standard – Low Recovery  LD Lab Duplicate Reproducibility  LR Concentration Exceeds Linear Range  MBL Method Blank Contamination  MDP Matrix Spike/Matrix Spike Duplicate Precision  MI Matrix interference obscuring the raw data  MSH Matrix Spike and/or Matrix Spike Duplicate – High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  OT Other	ССН	
EBL Equipment Blank Contamination  EMPC Estimated Possible Maximum Concentration  ESH Extraction Standard - High Recovery  ESL Extraction Standard - Low Recovery  FBL Field Blank Contamination  FD Field Duplicate  HT Holding Time  ICB Initial Calibration – Bad Linearity or Curve Function  ICH Initial Calibration – High Relative Response Factors  ICL Initial Calibration – Low Relative Response Factors  ISH Internal Standard – High Recovery  ISL Internal Standard – Low Recovery  LD Lab Duplicate Reproducibility  LR Concentration Exceeds Linear Range  MBL Method Blank Contamination  MDP Matrix Spike/Matrix Spike Duplicate Precision  MI Matrix interference obscuring the raw data  MSH Matrix Spike and/or Matrix Spike Duplicate – High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  OT Other	CCL	
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ESL Extraction Standard - Low Recovery  FBL Field Blank Contamination  FD Field Duplicate  HT Holding Time  ICB Initial Calibration – Bad Linearity or Curve Function  ICH Initial Calibration – High Relative Response Factors  ICL Initial Calibration – Low Relative Response Factors  ISH Internal Standard – High Recovery  ISL Internal Standard – Low Recovery  LD Lab Duplicate Reproducibility  LR Concentration Exceeds Linear Range  MBL Method Blank Contamination  MDP Matrix Spike/Matrix Spike Duplicate Precision  MI Matrix interference obscuring the raw data  MSH Matrix Spike and/or Matrix Spike Duplicate – High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  OT Other	EMPC	Estimated Possible Maximum Concentration
FBL Field Blank Contamination  FD Field Duplicate  HT Holding Time  ICB Initial Calibration – Bad Linearity or Curve Function  ICH Initial Calibration – High Relative Response Factors  ICL Initial Calibration – Low Relative Response Factors  ISH Internal Standard – High Recovery  ISL Internal Standard – Low Recovery  LD Lab Duplicate Reproducibility  LR Concentration Exceeds Linear Range  MBL Method Blank Contamination  MDP Matrix Spike/Matrix Spike Duplicate Precision  MI Matrix interference obscuring the raw data  MSH Matrix Spike and/or Matrix Spike Duplicate – High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  OT Other	ESH	Extraction Standard - High Recovery
FD Field Duplicate  HT Holding Time  ICB Initial Calibration – Bad Linearity or Curve Function  ICH Initial Calibration – High Relative Response Factors  ICL Initial Calibration – Low Relative Response Factors  ISH Internal Standard – High Recovery  ISL Internal Standard – Low Recovery  LD Lab Duplicate Reproducibility  LR Concentration Exceeds Linear Range  MBL Method Blank Contamination  MDP Matrix Spike/Matrix Spike Duplicate Precision  MI Matrix interference obscuring the raw data  MSH Matrix Spike and/or Matrix Spike Duplicate – High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  OT Other	ESL	Extraction Standard - Low Recovery
HT Holding Time  ICB Initial Calibration – Bad Linearity or Curve Function  ICH Initial Calibration – High Relative Response Factors  ICL Initial Calibration – Low Relative Response Factors  ISH Internal Standard – High Recovery  ISL Internal Standard – Low Recovery  LD Lab Duplicate Reproducibility  LR Concentration Exceeds Linear Range  MBL Method Blank Contamination  MDP Matrix Spike/Matrix Spike Duplicate Precision  MI Matrix interference obscuring the raw data  MSH Matrix Spike and/or Matrix Spike Duplicate – High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  OT Other	FBL	Field Blank Contamination
HT Holding Time  ICB Initial Calibration – Bad Linearity or Curve Function  ICH Initial Calibration – High Relative Response Factors  ICL Initial Calibration – Low Relative Response Factors  ISH Internal Standard – High Recovery  ISL Internal Standard – Low Recovery  LD Lab Duplicate Reproducibility  LR Concentration Exceeds Linear Range  MBL Method Blank Contamination  MDP Matrix Spike/Matrix Spike Duplicate Precision  MI Matrix interference obscuring the raw data  MSH Matrix Spike and/or Matrix Spike Duplicate – High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  OT Other	FD	Field Duplicate
ICB Initial Calibration – Bad Linearity or Curve Function  ICH Initial Calibration – High Relative Response Factors  ICL Initial Calibration – Low Relative Response Factors  ISH Internal Standard – High Recovery  ISL Internal Standard – Low Recovery  LD Lab Duplicate Reproducibility  LR Concentration Exceeds Linear Range  MBL Method Blank Contamination  MDP Matrix Spike/Matrix Spike Duplicate Precision  MI Matrix interference obscuring the raw data  MSH Matrix Spike and/or Matrix Spike Duplicate – High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  OT Other	HT	
ICH Factors  ICL Initial Calibration – Low Relative Response Factors  ISH Internal Standard – High Recovery  ISL Internal Standard – Low Recovery  LD Lab Duplicate Reproducibility  LR Concentration Exceeds Linear Range  MBL Method Blank Contamination  MDP Matrix Spike/Matrix Spike Duplicate Precision  MI Matrix interference obscuring the raw data  MSH Matrix Spike and/or Matrix Spike Duplicate – High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  OT Other	ICB	Initial Calibration – Bad Linearity or Curve
ISH Internal Standard – High Recovery ISL Internal Standard – Low Recovery LD Lab Duplicate Reproducibility LR Concentration Exceeds Linear Range MBL Method Blank Contamination MDP Matrix Spike/Matrix Spike Duplicate Precision MI Matrix interference obscuring the raw data MSH Matrix Spike and/or Matrix Spike Duplicate – High Recovery MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery OT Other	ICH	- · · · · · · · · · · · · · · · · · · ·
ISL Internal Standard – Low Recovery  LD Lab Duplicate Reproducibility  LR Concentration Exceeds Linear Range  MBL Method Blank Contamination  MDP Matrix Spike/Matrix Spike Duplicate Precision  MI Matrix interference obscuring the raw data  MSH Matrix Spike and/or Matrix Spike Duplicate – High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  OT Other	ICL	
LD Lab Duplicate Reproducibility  LR Concentration Exceeds Linear Range  MBL Method Blank Contamination  MDP Matrix Spike/Matrix Spike Duplicate Precision  MI Matrix interference obscuring the raw data  MSH Matrix Spike and/or Matrix Spike Duplicate —  High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate —  Low Recovery  OT Other	ISH	Internal Standard – High Recovery
LR Concentration Exceeds Linear Range  MBL Method Blank Contamination  MDP Matrix Spike/Matrix Spike Duplicate Precision  MI Matrix interference obscuring the raw data  MSH Matrix Spike and/or Matrix Spike Duplicate – High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  OT Other	ISL	Internal Standard – Low Recovery
MBL Method Blank Contamination  MDP Matrix Spike/Matrix Spike Duplicate Precision  MI Matrix interference obscuring the raw data  MSH Matrix Spike and/or Matrix Spike Duplicate — High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate — Low Recovery  OT Other	LD	Lab Duplicate Reproducibility
MDP Matrix Spike/Matrix Spike Duplicate Precision  MI Matrix interference obscuring the raw data  MSH Matrix Spike and/or Matrix Spike Duplicate — High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate — Low Recovery  OT Other	LR	Concentration Exceeds Linear Range
MI Matrix interference obscuring the raw data  MSH Matrix Spike and/or Matrix Spike Duplicate – High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  OT Other	MBL	Method Blank Contamination
MI Matrix interference obscuring the raw data  MSH Matrix Spike and/or Matrix Spike Duplicate – High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  OT Other	MDP	Matrix Spike/Matrix Spike Duplicate Precision
MSH Matrix Spike and/or Matrix Spike Duplicate – High Recovery  MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery  OT Other		
MSL Matrix Spike and/or Matrix Spike Duplicate – Low Recovery OT Other		Matrix Spike and/or Matrix Spike Duplicate –
	MSL	Matrix Spike and/or Matrix Spike Duplicate –
PD Pesticide Degradation	OT	Other
	PD	Pesticide Degradation

Value	Description
RE	Redundant Result - due to Reanalysis or Reextraction
SD	Serial Dilution Reproducibility
SSH	Spiked Surrogate – High Recovery
SSL	Spiked Surrogate – Low Recovery
TBL	Trip Blank Contamination
TN	Tune

CTO-222 Little Creek Attachment 1 Change Qual. Table SDG 1009022

3DG 1003022					
Sample ID	Metals	Compound	Q Flag	<b>Qual Code</b>	
LW03-SD504A-00-10C	6010B	Tin	В	MBL	
LW03-SD504A-00-10C	6010B	Zinc	L	CCL	
LW03-SD574-00-10C	6010B	Tin	В	MBL	
LW03-SD574-00-10C	6010B	Zinc	L	CCL	
LW03-SD504-00-10C	6010B	Tin	В	MBL	
LW03-SD510-00-10C	6010B	Tin	В	MBL	
LW03-SD510-00-10C	6010B	Zinc	L	CCL	
LW03-SD517-00-10C	6010B	Zinc	L	CCL	
LW03-SD518-00-10C	6010B	Tin	В	MBL	
LW03-SD518-00-10C	6010B	Zinc	L	CCL	
LW03-SD518-00-10C	SEM	Mercury	UL	MSL	
LW03-SD511-00-10C	6010B	Zinc	L	CCL	
LW03-SD505-00-10C	6010B	Zinc	L	CCL	
LW03-SD534-00-10C	6010B	Zinc	L	CCL	
LW03-SD538-00-10C	6010B	Zinc	L	CCL	
LW03-SD537-00-10C	6010B	Zinc	L	CCL	
LW03-SD533-00-10C	6010B	Zinc	L	CCL	
LW03-SD539-00-10C	6010B	Zinc	L	CCL	
LW03-SD544-00-10C	6010B	Zinc	L	CCL	
LW03-SD546-00-10C	6010B	Zinc	L	CCL	
LW03-SD535-00-10C	6010B	Zinc	L	CCL	
LW03-SD545-00-10C	6010B	Zinc	L	CCL	
LW03-SD543-00-10C	6010B	Zinc	L	CCL	
LW03-SD540-00-10C	6010B	Zinc	L	CCL	
LW03-SD540P-00-10C	6010B	Zinc	L	CCL	

CTO-222 Little Creek Attachment 1 Change Qual. Table SDG 1009032

Sample ID	Metals	Compound	Q Flag	Qual Code
LW03-SD501-00-10C	6010B	Tin	В	MBL
LW03-SD501-00-10C	6010B	Zinc	L	CCL
LW03-SD501-00-10C	SEM	Nickel	В	MBL
LW03-SD501-00-10C	SEM	Zinc	L	CCL
LW03-SD502-00-10C	6010B	Tin	В	MBL
LW03-SD502-00-10C	6010B	Zinc	L	CCL
LW03-SD502-00-10C	SEM	Zinc	L	CCL
LW03-SD503-00-10C	6010B	Tin	В	MBL
LW03-SD503-00-10C	6010B	Zinc	L	CCL
LW03-SD503-00-10C	SEM	Zinc	L	CCL
LW03-SD530-00-10C	6010B	Zinc	L	CCL
LW03-SD530-00-10C	SEM	Zinc	L	CCL
LW03-SD525-00-10C	6010B	Zinc	L	CCL
LW03-SD525-00-10C	SEM	Zinc	L	CCL
LW03-SD519-00-10C	6010B	Zinc	L	CCL
LW03-SD519-00-10C	SEM	Zinc	L	CCL
LW03-SD512-00-10C	6010B	Zinc	L	CCL
LW03-SD512-00-10C	SEM	Zinc	L	CCL
LW03-SD507-00-10C	6010B	Tin	В	MBL
LW03-SD507-00-10C	6010B	Zinc	L	CCL
LW03-SD507-00-10C	SEM	Zinc	L	CCL

CTO-222 Little Creek Attachment 1 Change Qual. Table SDG 1009060

Sample ID	Metals	Compound	Q Flag	<b>Qual Code</b>
LW03-SD541-00-10C	6010B	Copper	K	CCH
LW03-SD541-00-10C	SEM	Zinc	L	CCL
LW03-SD547-00-10C	6010B	Copper	K	ССН
LW03-SD547-00-10C	SEM	Zinc	L	CCL
LW03-SD547P-00-10C	6010B	Copper	K	CCH
LW03-SD553-00-10C	6010B	Copper	K	ССН
LW03-SD559-00-10C	6010B	Copper	K	ССН
LW03-SD559-00-10C	6010B	Nickel	В	EBL
LW03-SD552-00-10C	6010B	Copper	K	ССН
LW03-SD558-00-10C	6010B	Copper	K	ССН
LW03-SD564-00-10C	6010B	Copper	K	ССН
LW03-SD551-00-10C	6010B	Copper	K	CCH
LW03-SD557-00-10C	6010B	Copper	K	CCH
LW03-SD563-00-10C	6010B	Copper	K	CCH
LW03-SD550-00-10C	6010B	Copper	K	CCH
LW03-SD550-00-10C	6010B	Nickel	В	EBL
LW03-SD556-00-10C	6010B	Copper	K	ССН
LW03-SD556P-00-10C	6010B	Copper	K	ССН
LW03-SD562-00-10C	6010B	Copper	K	CCH
LW03-SD567-00-10C	6010B	Copper	K	ССН
LW03-SD571-00-10C	6010B	Copper	K	ССН

CTO-222 Little Creek

Attachment 1 Change Qual. Table

SDG 1009086

Sample ID	Metals	Compound	Q Flag	<b>Qual Code</b>
LW03-SD523-00-10C	6010B	Copper	K	CCH
LW03-SD523-00-10C	SEM	Zinc	L	CCL
LW03-SD509-00-10C	6010B	Copper	K	ССН
LW03-SD509-00-10C	6010B	Nickel	В	MBL
LW03-SD509-00-10C	SEM	Zinc	L	CCL
LW03-SD529-00-10C	6010B	Tin	L	MSL
LW03-SD555-00-10C	SEM	Copper	L	MSL
LW03-SD555-00-10C	SEM	Lead	L	MSL
LW03-SD555-00-10C	SEM	Nickel	J	SD
LW03-SD555-00-10C	SEM	Zinc	K	MSH
LW03-SD506-00-10C	6010B	Zinc	J	FD
LW03-SD506P-00-10C	6010B	Zinc	J	FD
LW07-SD404-00-10C	6010B	Lead	L	MSL

# Initial and Continuing Calibration

Lab SDG/Report: 1009086

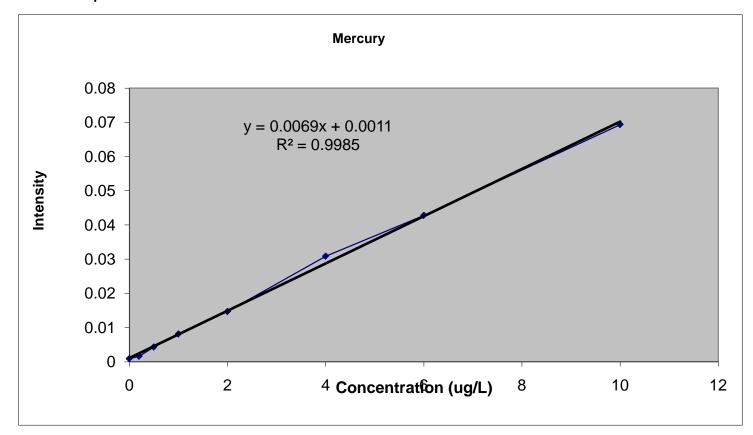
Date Analyzed 10/4/2010

Parameter: Mercury

Initial Calibration - Y - mX + b

Slope (m) =	= 0.0069	Lab Slope (m):	0.0069		
Intercept (b) =	= 0.0011	Lab intercept (b):	0.001		
Level	Concentration (mg/L)	Area (mVS)	RF		
1	0	0.00092	0.000000E+00		
2	0.2	0.00159	1.257862E+02		
3	0.5	0.00431	1.160093E+02		
4	1	0.00811	1.233046E+02		
5	2	0.01467	1.363327E+02		
6	4	0.03085	1.296596E+02		
7	6	0.04279	1.402197E+02		
8	10	0.06933	1.442377E+02		

# NR = Not Reported



Continuing Cali	bration	Date / Time:	6/25/2010 - 0928
Expected Conc.	5.00	Actual Conc.	5.03
Calculated % Rec=	100.60	Lab % Rec=	101

NR - Not Reported

# Sample Concentrations

# Formula for Calculation of Concentrations

<u>Soil</u>

Sample Conc =  $(Conc_{QR}) (V_f) (DF)$ (W) (S)

ConcQR = Concentration on Quantitation Report (ug/L) where

Final volume in liters

DF = Dilution factor

W = Weight in grams of wet sample S =

%solids / 100

<u>Water</u>

(Conc<sub>QR</sub>) (DF) Sample Conc =

where ConcQR = Concentration on Quantitation Report (ug/L) DF =

Dilution factor

Sample ID Date / Time Analyzed	1009086-36 10/8/2010 - 1449	1009086-40 10/8/2010 - 1451
Conc <sub>QR</sub> V <sub>f</sub> DF W S	0.75 0.05 1 0.35 0.3309	3.18875 0.05 1 0.33 0.3995

**Calculated Conc.** 0.324 1.209

**Lab Reported Conc** 0.324 1.21

# Formulas

Formula for Calculation of Recovery

% Recovery = Concentration or amount found x 100

Concentration or amount spiked

Formula for Calculation of Matrix Spike Recovery

Matrix Spike Recovery = SSR - SR x 100

SA

where: SSR = Spike sample result

SR = Sample result SA = Spike added

Formula for Calculation of Relative Percent Difference

Relative Percent Difference (RPD) = (| Value 1 - Value 2 |) x 100

(1/2) ( Value 1 + Value 2 )

**Formula for Calculation of Percent Difference** 

Percent Difference (%D) = (| Value 1 - Value 2 |) x 100

(Value 1 + Value 2)

# QC Check Sample

Lab SDG/Report: 1009086
Date Analyzed: 6/25/2010
Parameter: Mercury

 Sample:
 0J28402-CRL1
 ug/L
 True Value
 Cal. Rec.
 Lab Rec.
 OK?

 0.182
 0.2
 91
 91
 YES

NR = Not Reported

Laboratory Control Sample (LCS) Recoveries and/or Precision	)
---	---

Lab SDG/Report: 1009086
Date Analyzed: 6/25/2010
Parameter: Mercury

Conc FoundConc SpikedCal. Rec.Lab Rec.OK?LCS Conc. Found3.3003.691.792YES

LCSD Conc. Found

Cal. RPD Lab RPD OK?

Relative Percent Difference =

# MS/MSD Accuracy and Precision Recoveries

Lab SDG/Report:1009086Date Analyzed:6/25/2010Parameter:MercurySample ID:1009086-42

Conc Found Conc Spiked (SA) Cal. Rec. Lab Rec. OK? Spike sample result (SSR) 0.6337 0.513 86.94 86.9 YES Duplicate Spike sample result (SSR) 0.68 0.5441 90.39 90.4 YES

Sample result (SR) 0.1877

NR = Not Reported

Relative Percent Difference = 
Cal. RPD Lab RPD OK?
6.975 6.98 YES

Lab SDG/Report: 1009086 Parameter: Zinc

# Initial and Continuing Calibration

Initial Calibration Verification Date / Time: 10/6/2010 1032

Expected Conc. 1000.00 Actual Conc. 986.40

Calculated % Rec= 98.64 Lab % Rec= 99%

Continuing CalibrationDate / Time:10/6/2010 1613Expected Conc.1000.00Actual Conc.980.00

Calculated % Rec= 98.00 Lab % Rec= 98.00

Lab SDG/Report: 1009086 Parameter: Zinc

# Sample Concentrations

## Formula for Calculation of Concentrations

## <u>Soil</u>

Sample Conc =  $\frac{(Conc_{QR}) (V_f) (DF)] / W}{S/100}$ 

where ConcQR = Concentration on Quantitation Report (ug/L)

 $V_f =$  Final volume in liters

DF = Dilution factor

W = Weight in grams of wet sample

S = %solids

<u>Water</u>

Sample Conc =  $\frac{(Conc_{QR})(V_f)(DF)}{(V_f)(DF)}$ 

 $(V_i)$ 

711

where ConcQR = Concentration on Quantitation Report (ug/L)

 $V_f =$  Final volume in liters

 $\begin{aligned} \mathsf{DF} &= & \mathsf{Dilution} \ \mathsf{factor} \\ \mathsf{V}_{\mathsf{i}} &= & \mathsf{Initial} \ \mathsf{volume} \ \mathsf{in} \ \mathsf{liters} \end{aligned}$ 

 Sample ID
 1009086-36
 1009086-40

 Date / Time Analyzed
 10/6/10 1652
 10/6/10 1701

**Parameter** Zinc Zinc 3251.2 5961.6 Conc<sub>QR</sub>  $V_{\mathsf{f}}$ 0.1 0.1 DF 1 1  $V_{i}$ 1 1 W 2.0 2.1 33.09 39.95 **Calculated Concentration** 491.3 710.6

491

**Reported Concentration** 

Lab SDG/Report: 1009086 Parameter: Copper

Formulas

**Formula for Calculation of Recovery** 

% Recovery = Concentration or amount found x 100

Concentration or amount spiked

Formula for Calculation of Matrix Spike Recovery

Matrix Spike Recovery = <u>SSR - SR</u> x 100

SA

where: SSR = Spike sample result

SR = Sample result SA = Spike added

Formula for Calculation of Relative Percent Difference

Relative Percent Difference (RPD) = (| Value 1 - Value 2 |) x 100

(1/2) ( Value 1 + Value 2 )

**Formula for Calculation of Percent Difference** 

Percent Difference (%D) = (| Value 1 - Value 2 |) x 100

(Value 1 + Value 2)

	Laboi	atory Control Sample	(LCS) Re	coveries and/or	Precision		
Sample ID Parameter	0I15002-BS1 Copper	LCS Conc. Found LCSD Conc. Found	Conc Found 5.24	<u>Conc Spiked</u> 5	<u>Cal. Rec.</u> 105	<u>Lab Rec.</u> 105	OK? Yes
		Relative Percent Difference	=		<u>Cal. RPD</u>	<u>Lab RPD</u>	OK?
		MS/MSD Accuracy	and Pred	cision Recoverie	S		
Sample ID: Parameter	1009086-42 Copper	Spike sample result (SSR)	Conc Found 75.96	Conc Spiked (SA) 22.11	<u>Cal. Rec.</u> 106	<u>Lab Rec.</u> 106	OK? Yes
	Du	plicate Spike sample result (SSR) Sample result (SR)	77.1 52.56	21.9	112	112	Yes
NR = Not Reported		Relative Percent Difference	=		<u>Cal. RPD</u> 1.42	<u>Lab RPD</u> 1.43	OK? Yes



# Benthic Macroinvertebrate Infauna Data CLEAN III Contract Task Order 222 SWMUs 3 and 7B Naval Amphibious Base Little Creek, Virginia Beach, Virginia



Prepared for

CH2M HILL 5700 Cleveland Street, Suite 101 Virginia Beach, Virginia 23462

Prepared by

David L. Evans, Ph.D. Laura A. Line Douglas G. Strom Meagan R. Putts Water & Air Research, Inc. 6821 S.W. Archer Road Gainesville, Florida 32608





# **Contents**

Introduction	1
Method of Analysis	1
Organism Classification	2
Quality Control Procedures and Results	2
Biological Data Reduction with Computer Programs	3
Laboratory Data Management and Verification	3
Benthic Infauna Results	3

# **Appendices**

- Sorting and Identification QC Results
- **Species Density Tables** В
- Raw Data Species Pollution Sensitivity Classifications and Various Metrics С



#### Introduction

CH2M HILL is conducting work for the Atlantic Division of the Naval Facilities Engineering Command under the Navy CLEAN III contract N62470-02-D-3052, Contract Task Order 222 at Naval Amphibious Base Little Creek in Virginia Beach, Virginia. Water & Air Research, Inc. was contracted (CH2M HILL Purchase Order 940698) to analyze benthic invertebrate petite Ponar dredge samples collected by CH2M HILL staff on August 31 through September 12, 2010. Composite samples of three grabs per site at a total of 91 sites were collected within SWMUs 3 and 7B. All samples were analyzed in Water & Air's biological laboratory in Gainesville, Florida.

## **Method of Analysis**

Analytical methods followed for this project were described in the Quality Assurance Project Plan (Water and & Air Research 2010). In general, Water & Air adhered to Florida Department of Environmental Protection Quality Control Procedures, including LQ7410 (macroinvertebrate sorting) and LQ7420 (macroinvertebrate taxonomic identification). Also internal Florida Department of Environmental Protection Biology Department Standard Operating Procedures and Florida Administrative Code, Quality Assurance Rule, Chapter 62-160, were used as a guide for this project.

Upon receipt samples were inspected for condition and adequacy of documentation, logged and then stored in a secure air-conditioned laboratory with access restricted to authorized personnel. Preservative (formalin) was decanted through a U.S. Standard No. 35 mesh sieve (500 microns) and properly stored and disposed. Waste formalin and ethanol were double-contained and stored in a labeled locked enclosure, until transported to the Alachua County Hazardous Waste Collection Center or a certified private disposal firm.

Samples were rinsed using a U.S. Standard No. 35 mesh sieve to retain organisms, sediment, and debris. The invertebrates were sorted from the debris and placed in glass vials, preserved in 80 percent ethanol with glycerin, and sealed with stoppers. Each vial was labeled with its sample number other pertinent information, and a record of all samples was kept in an electronic Excel file. Each sample was assigned a macroinvertebrate identification log sheet. Taxonomists recorded scientific names and counts for each taxon on laboratory bench sheets. After the invertebrates were identified and counted they were placed in glass vials labeled with the sample number, preserved in 80 percent ethanol with glycerin, and sealed with stoppers.

Counts for headless organism fragments were recorded as zero (0). Fragments with a head were counted at the Lowest Practical Identification Level.



## **Organism Classification**

Pollution sensitivity classifications were assigned to benthic invertebrate taxa using the following published literature:

- Alden, R.W., III, D.M. Dauer, J.A. Ranasinghe, L.C. Scott, and R.J. Llanso. 2002. Statistical verification of the Chesapeake Bay Benthic Index of Biotic Integrity. Environmetrics 13:473-498.
- Llanso, R.J. 2002. Methods for calculating the Chesapeake Bay Benthic Index of Biotic Integrity. Versar, Inc., Columbia, MD.
- Ranasinghe, J. A., S. B. Weisberg, D. M. Dauer, L. C. Schaffner, R. J. Diaz, and J. B. Frithsen. 1994. Chesapeake Bay Benthic Community Restoration Goals. Prepared for the U.S. EPA Chesapeake Bay Program Office, the Governor's Council on Chesapeake Bay Research Fund, and the Maryland Department of Natural Resources by Versar, Inc., Columbia, MD.
- Weisberg, S.B., J.A. Ranasinghe, D.M. Dauer, L.C. Schaffner, R.J. Diaz, and J.B. Frithsen. 1997. An estuarine benthic index of biotic integrity (B-IBI) for the Chesapeake Bay. Estuaries 20:149-158.

Based on a review of readily available literature, numerical sensitivity scores are not available estuarine—marine macro-infauna in the project area. Based on professional judgment, Ranasinghe et al. (1994) developed a benthic infauna classification for opportunistic (OP) and equilibrium (EQ) species. Another classification for pollution-sensitive (PS) and pollution indicative (PI) estuarine macro-infauna was developed by Weisberg et al. (1997). More recent authors on the subject reference these classifications as the basis of expanded work (Alden et al. 2002; Llanso 2002).

## **Quality Control Procedures and Results**

Quality control (QC) checks for sample sorting were performed by a second lab technician on 13 of the 91 samples (14%) and the results were recorded in the electronic sample-processing logbook in the form of an Excel spreadsheet. Precision for macroinvertebrate data is determined for sample sorting by conducting the above-described QC check on 10 percent of the samples as described previously. For each QC check the number of specimens remaining in the sample after sorting is completed, and the total number of organisms in the sample (as counted by a taxonomist) are recorded and presented as a percentage using the following formula:

(Total organisms – QC organisms) X 100 = Sorting efficiency (%) Total Organisms

Water & Air's policy is to immediately train or re-train sorting technicians when average sorting efficiency falls below 95%. QC checks are continued on each sample until a 95% average sorting efficiency is attained. Sorting QC results are presented in Appendix A, Table A-1. Corrective actions, when necessary, are noted in the comments section of the table. Note that one of the Laboratory technicians was new and in-training at the time of this project. The two samples sorted by the new technician were checked by a second technician to ensure completeness of the sorting process.

A total of six samples were randomly selected for taxonomic QC checks from two sampling areas in the following fashion:

Three (3) samples from the SWMU 3 area

Three (3) samples from the SWMU 7B area



Taxonomic identification and count data were recorded on macroinvertebrate bench sheets. Quality control checks for identifications and counts were conducted, the results were recorded on a Taxonomy QC form, and the resulting taxonomic proficiencies were recorded in an electronic logbook. For tracking overall proficiency for each taxonomist, each entry for a given taxonomist was kept in a separate electronic file with the resulting average taxonomic proficiency. Hard copies of identifications and resolutions recorded on the Water & Air Internal Taxonomy Proficiency Form were kept in a paper file. Our policy is to immediately train or re-train when taxonomic proficiency falls below 90%. QC checks are continued until a taxonomic proficiency of at least 90% is attained by each taxonomist. QC results for taxonomic identification and counts are provided in Appendix A, Table A-2.

## **Biological Data Reduction with Computer Programs**

Due to the large number of taxa (frequently more than 50 per sample) in some samples, Water & Air uses proprietary WARSTAT and NAVSTAT computer programs to assist in data management. These programs were developed by Water & Air for use on personal computers and are currently written using Microsoft Access. Master species lists are maintained with the taxonomic name and a corresponding code name. Data output is presented in an organized tabular format and a QC check for accuracy is performed on all tabulated data.

## **Laboratory Data Management and Verification**

Calculators or computer programs are used to perform data calculations as well as WARSTAT and NAVSTAT to assist in data management. All entries or formulas used in calculations are double checked for accuracy and data output from WARSTAT and NAVSTAT is also checked.

#### **Benthic Infauna Results**

Species density tables are provided in Appendix B. Raw data, species pollution sensitivity classifications, and various metrics are provided in Appendix C.

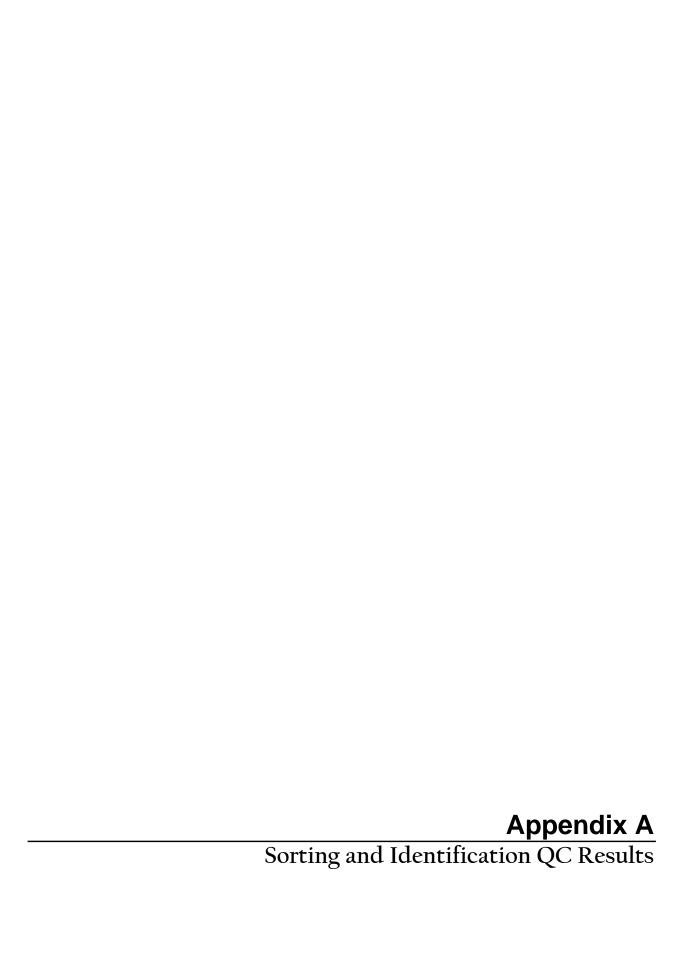
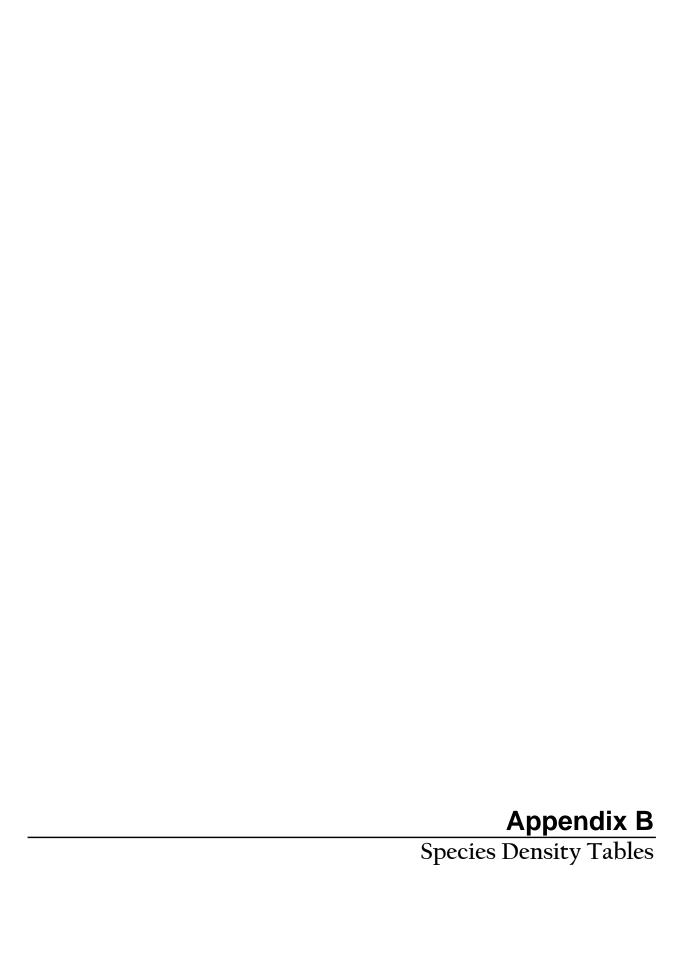


Table A-1. R	esults of So	rting Quality Control Checks	3													
Sorting Effic	eiency															
WAR ID #	Date Collected	Station ID	Replicate	Sample Type	Sort/Mount	Project Name	Project #	Proj. Manager	Sort Date	Sorted by	Sort QA Date	Sort QA Reviewer	Total # organisms	# found in QA	% Efficiency	Comments
20623	9/2/10	LW03 SD501	N/A	Ponar	S	Navy Clean III	10-7765-01	DLE	9/10/10	JF	9/23/2010	LAL	60	8	86.67%	
20647	9/1/10	LW03 SD525	N/A	Ponar	S	Navy Clean III	10-7765-01	DLE	9/4/10	JF	9/8/2010	TLS	0	0	100.00%	
20654	9/1/10	LW03 SD534	N/A	Ponar	S	Navy Clean III	10-7765-01	DLE	9/4/10	JF	9/8/2010	TLS	0	0	100.00%	
20657	9/1/10	LW03 SD538	N/A	Ponar	S	Navy Clean III	10-7765-01	DLE	9/4/10	JF	9/8/2010	TLS	0	0	100.00%	
20658	9/1/10	LW03 SD539	N/A	Ponar	S	Navy Clean III	10-7765-01	DLE	9/4/10	JF	9/8/2010	TLS	0	0	100.00%	
20681	9/8/10	LW03 SD571	N/A	Ponar	S	Navy Clean III	10-7765-01	DLE	10/1/10	JF	10/3/2010	DCC	0	0	100.00%	
20701	9/10/10	LW07 SD404-00-10C	N/A	Ponar	S	Navy Clean III	10-7765-01	DLE	10/1/10	JF	10/3/2010	DCC	104	0	100.00%	
20642	9/2/10	LW03 SD519	N/A	Ponar	S	Navy Clean III	10-7765-01	DLE	9/3/10	TS	9/3/2010	LAL	0	0	100.00%	
20673	9/1/10	LW03 SD556	N/A	Ponar	S	Navy Clean III	10-7765-01	DLE	10/14/10	MRP	10/15/2010	LAL	7	0	100.00%	
20683	9/12/10	LW07 B5 SD401-00-10C	N/A	Ponar	S	Navy Clean III	10-7765-01	DLE	9/28/10	MRP	9/29/2010	JF	106	1	99.00%	
20693A	9/11/10	LW07 L2 SD401-01-10C	N/A	Ponar	S	Navy Clean III	10-7765-01	DLE	10/13/10	MRP	10/14/2010	LAL	29	1	96.60%	
20676	9/7/10	LW03 SD559		Ponar	S	Navy Clean III	10-7765-01	DLE	9/27/10	ACC	9/27/2010	MRP	4	2	50.00%	In Training - Two small polychaete heads missed, training occurred
20695	9/27/10	LW07 K1 SD401-00-10C		Ponar	S	Navy Clean III	10-7765-01	DLE	9/27/10	ACC	9/29/2010	MRP	54	7	87.00%	In Training

Table A-2. Results of Identification and Count QC Checks														
Identific	ation Effici	iency												
WAR ID #	Date Collected	Station ID	Sample ID/ Replicate	Sample Type	Project Name	Project Number	Project Manager	ID Date	ID'ed by	ID QA date	ID Reviewer	Total # of Organisms	Incorrect # in QA	% ID Efficiency
20649	9/12/10	LW03SD527	1	PP	Navy Clean III	10-7765-01	DLE	10/4/2010	LL	11/11/2010	DGS	70	2	97.14%
20650	9/9/10	LW03SD528	1	PP	Navy Clean III	10-7765-01	DLE	10/4/2010	LL	11/11/2010	DGS	7	0	100.00%
20685	9/11/10	LW07D5SD401	1	PP	Navy Clean III	10-7765-01	DLE	10/6/2010	LL	11/11/2010	DGS	16	1	93.75%
20698	9/11/2010	LW07SD401	1	PP	Navy Clean III	10-7765-01	DLE	10/10/2010	LL	11/11/2010	DGS	45	2	95.55%
20703	9/1/2010	LW07SD53403	1	PP	Navy Clean III	10-7765-01	DLE	10/4/2010	LL	11/11/2010	DGS	41	0	100.00%
20713	9/11/2010	LW07SD40303	1	PP	Navy Clean III	10-7765-01	DLE	10/21/2010	LL	11/11/2010	DGS	58	1	98.27%



Sample Method: Petite Ponar (x3)



Gainesville, FL 32608

www.waterandair.com

# Macroinvertebrate Results Data Per Square Meter (Unpooled)

Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept

/ Clean III Report Date: 11/08/2010 / Clean Aug-Sept

2010

Taxonomic Colassification Col	Station Replicate lection Date	LW03-SD501-00-10C			
	ection Date	09/02/10	09/02/10	09/02/10	08/31/10
Phylum: Porifera					
Class: Unspecified					
Order: Unspecified					
Family: Unspecified					
Porifera (LPIL)		-	-	-	-
Phylum: Cnidaria					
Class: Hydrozoa					
Order: Unspecified					
Family: Unspecified					
Hydrozoa (LPIL)		-	-	-	-
Class: Anthozoa					
Order: Actiniaria					
Family: Unspecified					
Actiniaria (LPIL)		-	14	-	-
Actiniaria sp. A		•	-	-	-
Order: Unspecified					
Family: Unspecified					
Anthozoa (LPIL)		-	-	•	-
Phylum: Nemertea					
Class: Unspecified		7			
Order: Unspecified		t i			
Family: Unspecified					
Nemertea (LPIL)		29	-	14	-
Nemertea sp. A (LPIL)		-	-	-	-
Nemertea sp. B (LPIL)		-	-	-	-
Nemertea sp. C (LPIL)		-	-	-	-
Nemertea sp. D (LPIL)		-	-	-	-
Phylum: Annelida		Opening of the Control of the Contro			
Class: Polychaeta					
Order: Aciculata					
Family: Dorvilleidae		\$ \$			
Dorvillea (Schistomeringos) rudolphi		-	-	-	-
Dorvilleidae (LPIL)		-	-	-	-
Family: Eunicidae					
Marphysa sanguinea		-	-	-	-
Family: Glyceridae					
Glycera americana		-	-	-	-
Glycera dibranchiata		-	-	=	-
Glycera sp.		-	-	-	-
Ophioglycera sp.		14	-	-	-
Family: Goniadidae		20			
Glycinde solitaria		29	14	-	14
Family: Hesionidae					
Gyptis crypta		-	-	-	-
Hesionidae (LPIL)		-	-	-	-
Podarke obscura		14	-	-	14
Family: Nereididae		1			

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6821 SW Archer Road Gainesville, FL 32608 www.waterandair.com Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

2010

xonomic	Station Replicate	LW03-SD501	LW03-SD502	LW03-SD503	LW03-SD504A
assification	Collection Date	09/02/10	09/02/10	LW03-SD503-00-10C	08/31/10
Laeonereis culveri	(Richel Philip Camena Guelle de Innacestra de Anthonomia d		umin et thet till en		
Neanthes succinea		-	_	-	_
Nereididae (LPIL)		86	14	_	_
Platynereis dumerilii		-	-	_	_
Family: Oenonidae					
Drilonereis longa		-	_	-	_
Family: Onuphidae					
Diopatra cuprea		-	_	_	_
Family: Phyllodocidae					
Eteone sp.		-	_	_	_
Eumida sanguinea		_	_	_	-
Phyllodoce mucosa		_		_	-
Phyllodocidae (LPIL)		_	_		-
Family: Polynoidae			_	_	-
Lepidonotus sp.		_	_		
Family: Syllidae		_	-	-	-
Grubeosyllis clavata					
Syllidae (LPIL)		-	-	-	-
Order: Canalipalpata		-	-	-	-
Family: Ampharetidae					
		14			
Ampharetidae (LPIL)		14	-	-	-
Family: Chaetopteridae		20	20		
Spiochaetopterus costarum		29	29	-	29
Family: Cirratulidae					
Aphelochaeta sp.		-	72	14	-
Cirratulidae (LPIL)		14	-	-	-
Tharyx sp.		-	-	-	-
Family: Pectinariidae					
Pectinaria gouldii		-	-	-	-
Pectinaria sp.		-	-	-	-
Family: Sabellidae					
Demonax microphthalmus		-	57	-	<u>-</u>
Sabellaria vulgaris		-	-	-	. <u>-</u>
Sabellidae (LPIL)		-	14	-	-
Sabellinae (LPIL)		-	-	-	-
Family: Serpulidae					
Hydroides dianthus		-	-	-	-
Family: Serpulidae	:				
Hydroides diathus		-	-	-	-
Family: Serpulidae					
Hydroides sp.	:	<u>-</u>	-	-	14
Serpulidae (LPIL)		-	14	_	- -
Family: Spionidae					
Apoprionospio pygmaea		-	-	_	-
Dipolydora cauleri		-	<u>-</u>	_	_
Dipolydora socialis	,	<b>-</b>	_	_	-
Marenzelleria viridis				-	-

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Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station	LW03-SD501	LW03-SD502	LW03-SD503	LW03-SD504A
Classification	Replicate Collection Date	09/02/10	09/02/10	LW03-SD503-00-10C 09/02/10	LW03-SD504A-00-10C
Minuspio sp.	West Commission of the Commission	ga till elle til skalen skalen film, till elle till kalen fre for skilen professioner hande fre kalen fre til skalen skalen fre till skalen skalen fre til skalen skalen fre til skalen skalen fre til skalen skalen fre til skalen fre	iga por sente de la composition della compositio	et blokkett i saat saad maateen minimen menenenge menjation kitabahkakken di standa et in otsestinin naga 	et of reality for the second and a second and a second defined the second and a second a second and a second and a second and a second and a second
Paraprionospio pinnata		-	-	-	-
Polydora cornuta		-	-	-	-
Pseudopolydora sp.		-	-	-	-
Scolelepis texana		-	-	-	-
Spio sp.		-	-	43	-
Spionidae (LPIL)		-	-	-	-
Streblospio benedicti		14	-	14	29
Family: Terebellidae					
Loimia medusa		-	-	-	-
Loimia sp.		-	-	14	•
Pista cristata		-	-	-	-
Terebellidae (LPIL)		<b>™</b>	29	-	•
Order: Capitellida					
Family: Capitellidae					
Capitella capitata complex Blake		101	-	43	14
Capitella jonesi		-	-	-	-
Capitella sp.		-	14	-	-
Capitellidae (LPIL)		-	-	-	-
Heteromastus filiformis		-	29	-	_
Mediomastus ambiseta		72	-	29	57
Mediomastus californiensis		-	-	-	-
Mediomastus sp.		14	57	14	14
Order: Orbiniida					
Family: Orbiniidae					
Leitoscoloplos fragilis		-	-	-	-
Leitoscoloplos sp.		-	-	-	-
Orbiniidae (LPIL)		-	-	-	-
Scolopios rubra		-	-	-	-
Order: Phyllodocida					
Family: Pilargidae					
Sigambra tentaculata		-	-	-	-
Order: Unspecified			es de seus de la constante de		
Family: Maldanidae		** * * * * * * * * * * * * * * * * * *			
Clymenella torquata		•	-	-	-
Class: Clitellata					
Order: Haplotaxida					
Family: Naididae					
Paranais frici		-	-	-	-
Family: Tubificoid Naididae		4			
Tubificoid Naididae imm. w/o hair	setae (LPIL)	-	-	-	-
Tubificoides sp.		-	-	-	-
Phylum: Arthropoda			Page office of		
Class: Malacostraca			Total Control Control		
Order: Amphipoda					
Family: Aoridae		<b>!</b>	To a second		
Aoridae (LPIL)		<u>-</u>	_	-	-

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Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station	LW03-SD501	LW03-SD502	LW03-SD503	LW03-SD504A
Classification	Collection Date	09/02/10	09/02/10	09/02/10	LW03-SD504A-00-10C 08/31/10
Family: Corophiidae	il part for opinish i kommunencja sek produk heli skip. Aliffich i kili fili sek sek seganja poje	о у под до под до при поста по поста не на почени не на почени на почени на почени на почени на почени на поче На почени на п			феффиканский профессор и подделжения подделжения подделжения и подделже
Monocorophium acherusicum		-	-	-	-
Monocorophium insidiosum		-	-	-	-
Monocorophium sp.		-	-	-	-
Family: Liljeborgiidae			ms encount or mi		
Listriella clymenellae		-	-	-	-
Order: Cumacea					
Family: Bodotriidae			Parties of the Control of the Contro		
Cyclaspis varians		-	-	-	-
Family: Leuconidae					
Leucon americanus		-	-	-	-
Family: Unspecified			MANAN Manan		
Cumacea (LPIL)		-	-	_	-
Order: Decapoda					
Family: Alpheidae					
Alpheus sp.		-	-	_	_
Family: Palaemonidae					
Palaemonetes sp.		-	_	-	_
Family: Panopeidae					
Panopeidae (LPIL)		-	_	_	_
Panopeus herbstii		-	_	_	_
Rhithropanopeus harrisii		-	-	_	_
Family: Pinnotheridae					
Pinnixa sp.		_	_	_	_
Family: Portunidae					
Callinectes sp.		-	-	_	-
Portunidae (LPIL)		-	-	-	-
Family: Unspecified					
Decapoda (LPIL)		<u>-</u>	-	_	
Decapoda (zoea)		_	-	-	_
Decapoda zoea (larva)		-	_	-	-
Order: Isopoda					
Family: Idoteidae					
Edotia triloba		-	-	_	_
Order: Leptostraca					
Family: Unspecified					
Leptostraca (LPIL)		-	-	_	-
Order: Mysida					
Family: Mysidae					
Americamysis bigelowi		-	-	-	_
Americamysis sp.		-	-	-	-
Mysidae (LPIL)		-	-	-	-
Neomysis americana		-	-	-	_
Family: Unspecified					
Mysidacea (LPIL)		: :	-	-	-
Order: Stomatopoda					
Family: Squillidae					
			1		
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Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station Replicate	LW03-SD501 LW03-SD501-00-10C	LW03-SD502 LW03-SD502-00-10C	LW03-SD503 LW03-SD503-00-10C	LW03-SD504A LW03-SD504A-00-10C
Classification	Collection Date	09/02/10	09/02/10	09/02/10	08/31/10
Squilla empusa		-	-	get fan de fan de fan de fan de fan de fan de fan de fan de fan de fan de fan de fan de fan de fan de fan de f 	
Class: Maxillopoda					
Order: Sessilia					
Family: Balanoidea					
Balanus improvisus		-	-	-	-
Family: Balanomorpha					Managara da
Balanomorpha (LPIL)		14	29	-	-
Class: Entognatha					
Order: Collembola					
Family: Unspecified					
Collembola (LPIL)		-	-	-	-
Class: Unspecified					
Order: Unspecified					
Family: Unspecified					
Crustacea (LPIL)		-	-	-	-
Phylum: Mollusca					
Class: Gastropoda					
Order: Cephalaspidea					
Family: Cylichnidae		4.4			Table State
Acteocina canaliculata		14	-	•	-
Acteocina sp.		-	-	-	-
Order: Heterostropha					
Family: Pyramidellidae			4.4	T - Consequent	
Odostomia engonia		-	14	-	-
Order: Heterostropha					
Family: Pyramidellidae					
Turbonilla interrupta		-	-	-	-
Order: Neogastropoda					
Family: Columbellidae Astyris lunata				14	
Nassarius vibex		_	_	14	-
Family: Conidae		- - - -	_	_	-
Pyrgocythara plicosa			14		AMARA
Order: Neotaenioglossa		-	14	- 	-
Family: Calyptraeidae					
Crepidula fornicata		115	72	_	
Crepidula romicata  Crepidula plana		29	-	_	-
Order: Neotaenioglossa		25	_	-	-
Family: Cerithiopsidae					
Cerithiopsis greenii		_	14	_	
Order: Neotaenioglossa			17	_	<u>-</u>
Family: Epitoniidae					
Epitonium rupicola		_	14	_	_
Order: Unspecified					_
Family: Unspecified					
Gastropoda (LPIL)		<u>_</u>	14	_	_
Class: Bivalvia			• •		_

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Taxonomic Classification	Station Replicate	LW03-SD501-00-10C	LW03-SD502 LW03-SD502-00-10C	LW03-SD503 LW03-SD503-00-10C	LW03-SD504A LW03-SD504A-00-10C
	Collection Date	09/02/10	09/02/10	09/02/10	08/31/10
Order: Arcoida			en comanos y		
Family: Arcidae			9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9		
Anadara transversa		-	-	-	-
Order: Mytiloida					
Family: Mytilidae					
Amygdalum papyrium		14	-	14	-
Order: Ostreoida		a s a constant de la	W. Carlotte		
Family: Anomiidae					
Anomia simplex		-	-	-	-
Order: Ostreoida					
Family: Anomiidae					
Pododesmus rudis		-	-	-	-
Order: Ostreoida		The statement of the st			- Landau - L
Family: Ostreidae					4 1000000000000000000000000000000000000
Crassostrea virginica		-	-	-	-
Order: Pholadomyoida					
Family: Lyonsiidae				-	
Lyonsia hyalina Order: Veneroida		-	-	-	-
			The second of		
Family: Mactridae  Mactridae (LPIL)			The state of the s		
Mulinia lateralis		- 14	29	-	-
Mulinia lateralis		14	29	-	-
Family: Petricolidae		-		-	-
Petricolaria pholadiformis			_		
Family: Solecurtidae				-	-
Tagelus plebeius		_	_	_	
Tagelus sp.		_	_	_	-
Family: Tellinidae				İ	-
Macoma tenta		29	_	_	_
Tellinidae (LPIL)			-	_	_
Family: Veneridae		 	and the second s		
Gemma gemma		86	72	29	_
Order: Veneroida					Total Contract
Family: Veneridae				i !	
Mercenaria mercenaria		-	-	_	-
Order: Veneroida					3
Family: Veneridae		•			To contain the con
Pitar sp.		-	_	-	_
Veneridae (LPIL)		14	43	43	-
Order: Unspecified			7 7 8 8		
Family: Unspecified				: 1	
Bivalvia (LPIL)		-	-	-	-
Phylum: Phoronida		1		!	
Class: Unspecified					
Order: Unspecified					
Family: Unspecified		t :			

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Taxonomic Classification	Station Replicate Collection Date	LW03-SD501 LW03-SD501-00-10C 09/02/10	LW03-SD502 LW03-SD502-00-10C 09/02/10	LW03-SD503 LW03-SD503-00-10C 09/02/10	LW03-SD504A LW03-SD504A-00-10C
Phoronida (LPIL)		101	86	43	ere királtik élő királtat az nakirált az nataszoktását királtatását ki
Phylum: Echinodermata					
Class: Ophiuroidea					
Order: Unspecified					
Family: Unspecified					
Ophiuroidea (LPIL)		-	-	-	-
Phylum: Chordata					
Class: Cephalochordata					
Order: Amphioxiformes					
Family: Branchiostomatidae	•				
Branchiostoma sp.		-	-	-	-
No Organisms Present		-	-	-	-
Total Organisms		862	761	330	187
Total Taxa		22	23	13	8



Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept 2010 Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

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Taxonomic Classification	Station Replicate Collection Date	LW03-SD504 LW03-SD504-00-10C	LW03-SD505 LW03-SD505-00-10C	LW03-SD506 LW03-SD506-00-10C	LW03-SD507 LW03-SD507-00-10C
Phylum: Porifera			Provident Control of Administration Control of State Cont	A PORTER STANDARD STANDARD SANDARD AND AND AND AND AND AND AND AND AND AN	THP merchanist to the local memorial and the Market and account and the Market American in the
Class: Unspecified					
Order: Unspecified		6 1 7			
Family: Unspecified				!	
Porifera (LPIL)		-	14	-	_
Phylum: Cnidaria					
Class: Hydrozoa		of the state of th			
Order: Unspecified					
Family: Unspecified					
Hydrozoa (LPIL)		-	_	_	_
Class: Anthozoa					
Order: Actiniaria					
Family: Unspecified					
Actiniaria (LPIL)		_	_	29	29
Actiniaria sp. A		-		-	23
Order: Unspecified			_	_	-
Family: Unspecified					
Anthozoa (LPIL)		_	_		
Phylum: Nemertea		_	-	-	-
Class: Unspecified					
Order: Unspecified				!	
Family: Unspecified					
Nemertea (LPIL)		_			40
Nemertea sp. A (LPIL)		_	-	-	43
		-	-	-	-
Nemertea sp. B (LPIL)		-	-	-	-
Nemertea sp. C (LPIL)		-	-	-	-
Nemertea sp. D (LPIL)  Phylum: Annelida		-	-	-	-
Class: Polychaeta					
Order: Aciculata					
Family: Dorvilleidae					
	l m lm i				
Dorvillea (Schistomeringos) rudo Dorvilleidae (LPIL)	prii	-	-	-	-
		- !	-	-	-
Family: Eunicidae				1	
Marphysa sanguinea		-	-	-	-
Family: Glyceridae		and the same of th			
Glycera americana		-	-	-	-
Glycera dibranchiata		-	-	14	-
Glycera sp.		-	-	-	-
Ophioglycera sp.		-	-	-	-
Family: Goniadidae					
Glycinde solitaria		-	-	14	14
Family: Hesionidae					
Gyptis crypta		-	-	29	-
Hesionidae (LPIL)		-	-	<u>-</u>	-
Podarke obscura		-	-	14	-
Family: Nereididae					

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Project: Navy Clean III
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Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

	<u>.</u>	LIMOS CDECA	LIMOS ODEOE	LIMOS CDECC	LMOS CDEOZ
Taxonomic	Station Replicate	LW03-SD504 LW03-SD504-00-10C	LW03-SD505	LW03-SD506	LW03-SD507
Classification	Collection Date	08/30/10	08/31/10	09/10/10	09/02/10
Laeonereis culveri		•			
Neanthes succinea		-	-	-	-
Nereididae (LPIL)		<del>-</del>	-	14	14
Platynereis dumerilii		-	-	-	-
Family: Oenonidae					
Drilonereis longa		-	_	-	-
Family: Onuphidae					
Diopatra cuprea		-	-	_	-
Family: Phyllodocidae					
Eteone sp.		-	-	-	-
Eumida sanguinea		-	-	<u>-</u>	_
Phyllodoce mucosa		-	-	-	-
Phyllodocidae (LPIL)		-	-	-	-
Family: Polynoidae					
Lepidonotus sp.		-	-	_	-
Family: Syllidae					
Grubeosyllis clavata		_	-	_	-
Syllidae (LPIL)		_	-	-	14
Order: Canalipalpata					
Family: Ampharetidae					
Ampharetidae (LPIL)		-		_	-
Family: Chaetopteridae					MET
Spiochaetopterus costarum		_	14	57	14
Family: Cirratulidae				Į.	
Aphelochaeta sp.		_		_	72
Cirratulidae (LPIL)		_	_	101	_
Tharyx sp.		_	_	43	_
Family: Pectinariidae				10	
Pectinaria gouldii		_	_	_	_
Pectinaria sp.		_	_	14	_
Family: Sabellidae		( (		17	
Demonax microphthalmus			-		-
Sabellaria vulgaris		_	_	_	_
Sabellidae (LPIL)		<u> </u>	_		
Sabellinae (LPIL)		_	_	_	
Family: Serpulidae					_
Hydroides dianthus		_	_	43	_
Family: Serpulidae				70	_
Hydroides diathus		_	_	_	
Family: Serpulidae		_	_	-	-
		_	_	_	
Hydroides sp.		- !	_	-	-
Serpulidae (LPIL)		<u>-</u>	<u>-</u>	-	-
Family: Spionidae			_		
Apoprionospio pygmaea		: <u>-</u>	-	-	-
Dipolydora cauleri		-	-	•	-
Dipolydora socialis		- -	_	-	_
Marenzelleria viridis			-	-	-

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Taxonomic Classification	Station Replicate ollection Date	LW03-SD504-00-10C		LW03-SD506 LW03-SD506-00-10C	
	ollection Date	08/30/10	08/31/10	09/10/10	09/02/10
Minuspio sp.		-	- E7	-	-
Paraprionospio pinnata		<u>-</u>	57	14	-
Polydora cornuta		-	-	-	-
Pseudopolydora sp.		-	-	-	-
Scolelepis texana		-	-	-	-
Spio sp.		-	-	-	-
Spionidae (LPIL)		-	-	-	-
Streblospio benedicti		-	14	-	29
Family: Terebellidae		1			
Loimia medusa		-	-	-	-
Loimia sp.		-	-	-	-
Pista cristata		-	-	-	-
Terebellidae (LPIL)		-	-	-	-
Order: Capitellida					
Family: Capitellidae					
Capitella capitata complex Blake		-	43	29	-
Capitella jonesi		-	-	-	-
Capitella sp.		-	-	-	-
Capitellidae (LPIL)		<del>-</del>	-	-	-
Heteromastus filiformis		14	-	-	-
Mediomastus ambiseta		-	14	72	43
Mediomastus californiensis		-	-	-	-
Mediomastus sp.		-	-	86	14
Order: Orbiniida					
Family: Orbiniidae					
Leitoscoloplos fragilis		-	-	-	_
Leitoscoloplos sp.		-	-	-	-
Orbiniidae (LPIL)		-	-	-	-
Scolopios rubra		<u>-</u>	-	-	-
Order: Phyllodocida		} :			
Family: Pilargidae					
Sigambra tentaculata		-	-	-	_
Order: Unspecified					
Family: Maldanidae		<u> </u>			
Clymenella torquata		_	-	-	_
Class: Clitellata		1			
Order: Haplotaxida					
Family: Naididae					
Paranais frici		- -	_	-	_
Family: Tubificoid Naididae		[ [			
Tubificoid Naididae imm. w/o hair se	tae (LPIL)	<u>-</u>	_	_	_
Tubificoides sp.	(=: .=)	l L	-	-	<u> </u>
Phylum: Arthropoda		( ) ( )		1	
Class: Malacostraca					
Order: Amphipoda		<b>.</b>		! !	
Family: Aoridae		1			
Aoridae (LPIL)		<u>_</u>	_	_	_
, (c) (d) (L) (L)					<del>-</del>

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Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station	LW03-SD504	LW03-SD505	LW03-SD506	LW03-SD507
Classification	Replicate	LW03-SD504-00-10C	LW03-SD505-00-10C	LW03-SD506-00-10C	LW03-SD507-00-10C
	Collection Date	08/30/10	08/31/10	09/10/10	09/02/10
Family: Corophiidae					
Monocorophium acherusicum		-	-	-	-
Monocorophium insidiosum		-	-	-	-
Monocorophium sp.		-	-	-	-
Family: Liljeborgiidae					The state of the s
Listriella clymenellae		-	-	-	-
Order: Cumacea					
Family: Bodotriidae					
Cyclaspis varians		-	-	-	-
Family: Leuconidae					
Leucon americanus		_	-	-	-
Family: Unspecified					TO ADDADAGE TO LITTLE OF THE STATE OF THE ST
Cumacea (LPIL)		-	-	14	-
Order: Decapoda					a
Family: Alpheidae					THE RESIDENCE OF THE PROPERTY
Alpheus sp.		-	-	<del>-</del>	-
Family: Palaemonidae					redolokie-
Palaemonetes sp.		-	-	-	-
Family: Panopeidae				**************************************	- Marie - Company - Compan
Panopeidae (LPIL)		-	-	-	-
Panopeus herbstii		-	-	-	-
Rhithropanopeus harrisii Family: Pinnotheridae		<u>-</u>	-	-	-
Pinnixa sp.					Ann the second
Family: Portunidae		-	-	•	-
Callinectes sp.		_	_		
Portunidae (LPIL)		_	_	_	-
Family: Unspecified			_	_	-
Decapoda (LPIL)		_	_	_	
Decapoda (El IE) Decapoda (zoea)		_	_	_	-
Decapoda ( <i>20ea)</i> Decapoda z <i>oea (larva</i> )		_	_	_	_
Order: Isopoda					_
Family: Idoteidae					
Edotia triloba		-	_	_	_
Order: Leptostraca					
Family: Unspecified		! !			
Leptostraca (LPIL)		<u>-</u>	_	_	_
Order: Mysida					
Family: Mysidae					
Americamysis bigelowi		-	_	_	-
Americamysis sp.		<del>-</del>	-	-	-
Mysidae (LPI <b>L</b> )		_	-	-	14
Neomysis americana		<del>-</del>	-	-	-
Family: Unspecified					
Mysidacea (LPIL)		<u>-</u>	-	-	-
Order: Stomatopoda					
Family: Squillidae					
-					

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Tavanamia	Oversie	LIMING CIDENA	LW03 CDE0E	1,4400

Taxonomic Classification	Station Replicate Collection Date	LW03-SD504 LW03-SD504-00-10C	LW03-SD505 LW03-SD505-00-10C	LW03-SD506 LW03-SD506-00-10C	LW03-SD507 LW03-SD507-00-10C
Squilla empusa	and the company of th	THE PROPERTY OF THE PROPERTY O		ter ett millestätiskelidete et kost oppretekten sich sie källetäät komiteen milleste tradition op sich sich si -	- Constitution and constitution of the constit
Class: Maxillopoda		Taxas and a model			
Order: Sessilia					
Family: Balanoidea					
Balanus improvisus		-	-	-	-
Family: Balanomorpha		data da da da da da da da da da da da da da			
Balanomorpha (LPIL)		-	-	-	-
Class: Entognatha					
Order: Collembola					
Family: Unspecified					
Collembola (LPIL)				-	-
Class: Unspecified					
Order: Unspecified					
Family: Unspecified					
Crustacea (LPIL)		-	-	_	-
Phylum: Mollusca					
Class: Gastropoda		Control of the Contro			
Order: Cephalaspidea		1 5 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2			
Family: Cylichnidae					
Acteocina canaliculata		-	-	14	-
Acteocina sp.		-	-	_	14
Order: Heterostropha			TAXABLE BOOKS		
Family: Pyramidellidae					
Odostomia engonia		-	-		-
Order: Heterostropha					
Family: Pyramidellidae					
Turbonilla interrupta		<u>-</u>	-	14	-
Order: Neogastropoda				: : :	
Family: Columbellidae					
Astyris lunata		-	-	-	-
Nassarius vibex		-	-	-	14
Family: Conidae		•		and the second s	
Pyrgocythara plicosa		-	-	57	-
Order: Neotaenioglossa					
Family: Calyptraeidae		ř !			
Crepidula fornicata		-	-	244	-
Crepidula plana		-	-	-	-
Order: Neotaenioglossa					land to the state of the state
Family: Cerithiopsidae					
Cerithiopsis greenii		-	-	-	-
Order: Neotaenioglossa		: ! !			
Family: Epitoniidae					
Epitonium rupicola		-	-	-	-
Order: Unspecified		2 1 6			
Family: Unspecified				i may	
Gastropoda (LPIL)		-	-	-	14
Class: Bivalvia			( )		

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Taxonomic	Station	LW03-SD504	LW03-SD505	LW03-SD506	LW03-SD507
Classification	Replicate	LW03-SD504-00-10C		LW03-SD506-00-10C	LW03-SD507-00-10C
	Collection Date	08/30/10	08/31/10	09/10/10	09/02/10
Order: Arcoida					
Family: Arcidae					
Anadara transversa		-	-	14	-
Order: Mytiloida					
Family: Mytilidae					
Amygdalum papyrium		-	-	-	-
Order: Ostreoida					
Family: Anomiidae					
Anomia simplex		-	-	-	-
Order: Ostreoida					
Family: Anomiidae					
Pododesmus rudis		-	-	-	-
Order: Ostreoida					
Family: Ostreidae					
Crassostrea virginica		_	-	-	-
Order: Pholadomyoida					
Family: Lyonsiidae					
Lyonsia hyalina		-	-	-	-
Order: Veneroida					
Family: Mactridae					
Mactridae (LPIL)		-	-	-	-
Mulinia lateralis		•	-	-	-
Mulinia lateralis		-	-	_	-
Family: Petricolidae					
Petricolaria pholadiformis		-	-	-	-
Family: Solecurtidae					
Tagelus plebeius		-	-	<del>-</del>	-
Tagelus sp.		-	-	-	-
Family: Tellinidae					
Macoma tenta		-	-	-	-
Tellinidae (LPIL)		-	-	-	-
Family: Veneridae					
Gemma gemma		-	14	57	29
Order: Veneroida					
Family: Veneridae					
Mercenaria mercenaria		29	-	-	29
Order: Veneroida					
Family: Veneridae					
Pitar sp.		<u>-</u>	-	-	-
Veneridae (LPIL)		<u>.</u>	14	172	-
Order: Unspecified					
Family: Unspecified					
Bivalvia (LPIL)		<u>-</u>	-	-	43
Phylum: Phoronida					
Class: Unspecified					
Order: Unspecified		• •			
Family: Unspecified					

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Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

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Taxonomic Classification	Station Replicate Collection Date	LW03-SD504 LW03-SD504-00-10C 08/30/10	LW03-SD505 LW03-SD505-00-10C 08/31/10	LW03-SD506 LW03-SD506-00-10C 09/10/10	LW03-SD507 LW03-SD507-00-10C
Phoronida (LPIL)	ts, iki silasotkia kalennik kiriaan elektrika: 5000 kieli saaree	gar attendet menten andet en mediat er het aan de 1900 van ee het 1900 verke 1900 van 1900 van 1900 van 1900 v -	115	374	172
Phylum: Echinodermata					
Class: Ophiuroidea					
Order: Unspecified					
Family: Unspecified					
Ophiuroidea (LPIL)		-	_	-	-
Phylum: Chordata					
Class: Cephalochordata					
Order: Amphioxiformes		1			
Family: Branchiostomatidae	<del>)</del>				
Branchiostoma sp.		-	-	-	29
No Organisms Present		-	-	-	-
Total Organisms		43	302	1537	647
Total Taxa		2	9	24	19



Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

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Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

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Taxonomic

Taxonomic	Station Replicate	LW03-SD508 LW03-SD508-00-10C	LW03-SD509	LW03-SD510	LW03-SD511
Classification	Collection Date	09/10/10	09/09/10	08/31/10	08/31/10
Phylum: Porifera	umanni kristorio del del del del del del del del del del	- A PRINTER CHICAGO PROPERTO CONTRACTO CONTRACTO CONTRACTO CONTRACTO CONTRACTO CONTRACTO CONTRACTO CONTRACTO C	genaturation of the Annie and Constitution of	SANDEN PROPERTY SAME CONTRACTOR OF THE SAME SAME SAME SAME SAME SAME SAME SAM	
Class: Unspecified					
Order: Unspecified					
Family: Unspecified					
Porifera (LPIL)		_	-	-	-
Phylum: Cnidaria					
Class: Hydrozoa					
Order: Unspecified					
Family: Unspecified					
Hydrozoa (LPIL)			-	-	-
Class: Anthozoa					
Order: Actiniaria		Ì			
Family: Unspecified					-
Actiniaria (LPIL)		-	14	-	-
Actiniaria sp. A		-	-	_	-
Order: Unspecified		**************************************			
Family: Unspecified				The state of the s	
Anthozoa (LPIL)		-	-	-	-
Phylum: Nemertea					
Class: Unspecified		¥ 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			
Order: Unspecified					
Family: Unspecified					
Nemertea (LPIL)		_	-	-	14
Nemertea sp. A (LPIL)		-	-	_	-
Nemertea sp. B (LPIL)		-	-	-	-
Nemertea sp. C (LPIL)		-	-	-	-
Nemertea sp. D (LPIL)		-	-		-
Phylum: Annelida					
Class: Polychaeta					
Order: Aciculata					
Family: Dorvilleidae					
Dorvillea (Schistomeringos) rudol	lphi	-	-	: :	_
Dorvilleidae (LPIL)	•	-	-	<u>-</u>	_
Family: Eunicidae		1			
Marphysa sanguinea		-	-	<u>-</u>	•
Family: Glyceridae		2 1 2			
Glycera americana		<u>-</u>	-	<u>-</u>	-
Glycera dibranchiata		-	-	_	_
<i>Glycera</i> sp.		<u>-</u>	-	-	•
Ophioglycera sp.		-	-	-	-
Family: Goniadidae					
Glycinde solitaria		14	-	_	29
Family: Hesionidae				1	
Gyptis crypta		<del>-</del>	-	-	-
Hesionidae (LPIL)		· -	<del>-</del>	<u>-</u>	-
Podarke obscura		-	14	_	-
Family: Nereididae					

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Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station	LW03-SD508	LW03-SD509	LW03-SD510	LW03-SD511
Classification	Replicate Collection Date	LW03-SD508-00-10C	LW03-SD509-00-10C	LW03-SD510-00-10C	LW03-SD511-00-10C
	9150144444441555579901900000000000000000000000000000	09/10/10 	U-S/U-S/10	00/31/10	00/3 1/10
Laeonereis culveri		- 14	29	-	-
Neanthes succinea		14	-	_	-
Nereididae (LPIL)		-		-	-
Platynereis dumerilii		-	14	-	-
Family: Oenonidae					
Drilonereis longa		-	-	-	-
Family: Onuphidae					
Diopatra cuprea		-	-	<del>-</del>	-
Family: Phyllodocidae			That is a second of the second	· 1	****
Eteone sp.		-	-	-	-
Eumida sanguinea		-	-	-	-
Phyllodoce mucosa		-	-	-	-
Phyllodocidae (LPIL)		-	-	-	-
Family: Polynoidae					The state of the s
Lepidonotus sp.		-	-	-	-
Family: Syllidae					1
Grubeosyllis clavata		-	-	-	-
Syllidae (LPIL)		-	-	-	-
Order: Canalipalpata		t. 4			
Family: Ampharetidae					
Ampharetidae (LPIL)		-	-	-	•
Family: Chaetopteridae					
Spiochaetopterus costarum		14	-	14	72
Family: Cirratulidae					
Aphelochaeta sp.			-	-	-
Cirratulidae (LPIL)		-	-	14	14
Tharyx sp.			-	29	-
Family: Pectinariidae					
Pectinaria gouldii			_	_	14
Pectinaria sp.		-	-	-	_
Family: Sabellidae					
Demonax microphthalmus		<u>-</u>	-	_	_
Sabellaria vulgaris		_	_	_	-
Sabellidae (LPIL)		_	_	14	-
Sabellinae (LPIL)		_	_	-	_
Family: Serpulidae					
Hydroides dianthus		_	_	_	_
Family: Serpulidae		i i			
Hydroides diathus		_	_	_	_
Family: Serpulidae					
Hydroides sp.		* * * * * * * * * * * * * * * * * * *	_	_	_
Serpulidae (LPIL)		_ 		_	
		- - -	-	•	-
Family: Spionidae		:			
Apoprionospio pygmaea		- i	-	-	-
Dipolydora cauleri		· •	-	-	-
Dipolydora socialis		-	1.4	-	-
Marenzelleria viridis		•	14	-	-

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Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

LW03-SD508 LW03-SD509 LW03-SD510 LW03-SD511 **Taxonomic** Station Replicate LW03-SD508-00-10C LW03-SD509-00-10C LW03-SD510-00-10C LW03-SD511-00-10C Classification Collection Date 09/10/10 09/09/10 08/31/10 08/31/10 Minuspio sp. 115 144 Paraprionospio pinnata 29 29 Polydora cornuta Pseudopolydora sp. Scolelepis texana Spio sp. Spionidae (LPIL) 72 129 14 Streblospio benedicti Family: Terebellidae Loimia medusa Loimia sp. 14 Pista cristata Terebellidae (LPIL) Order: Capitellida Family: Capitellidae Capitella capitata complex Blake 201 158 14 Capitella jonesi Capitella sp. Capitellidae (LPIL) Heteromastus filiformis 14 29 Mediomastus ambiseta Mediomastus californiensis 14 Mediomastus sp. Order: Orbiniida Family: Orbiniidae Leitoscoloplos fragilis Leitoscoloplos sp. Orbiniidae (LPIL) Scoloplos rubra Order: Phyllodocida Family: Pilargidae Sigambra tentaculata Order: Unspecified Family: Maldanidae Clymenella torquata Class: Clitellata Order: Haplotaxida Family: Naididae Paranais frici Family: Tubificoid Naididae Tubificoid Naididae imm. w/o hair setae (LPIL) Tubificoides sp. Phylum: Arthropoda Class: Malacostraca Order: Amphipoda Family: Aoridae Aoridae (LPIL)

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2010

ection Date	LW03-SD508-00-10C 09/10/10 - - - - - -			
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Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

			,		
Taxonomic	Station	LW03-SD508	LW03-SD509	LW03-SD510	LW03-SD511
Classification	Replicate Collection Date	LW03-SD508-00-10C 09/10/10	LW03-SD509-00-10C	LW03-SD510-00-10C 08/31/10	LW03-SD511-00-10C 08/31/10
Squilla empusa		n contrata de la compansión de la compansión de la contrata de la contrata de la contrata de la contrata de la 	en en en en en en en en en en en en en e	gebert det die bestellt des verlands under bestellt aber deitselne der des annammen veranden en gesammen man e —	en prominente en la mante en comunicación de c
Class: Maxillopoda					
Order: Sessilia					COOPE
Family: Balanoidea					
Balanus improvisus		-	57	-	-
Family: Balanomorpha					
Balanomorpha (LPIL)		-	-	-	-
Class: Entognatha					
Order: Collembola				man of The services	
Family: Unspecified					
Collembola (LPIL)		-	-	-	-
Class: Unspecified					
Order: Unspecified Family: Unspecified					
Crustacea (LPIL)		_	_	_	and dispersion and
Phylum: Mollusca		_	_	7	_
Class: Gastropoda					
Order: Cephalaspidea					
Family: Cylichnidae					The state of the s
Acteocina canaliculata		-	_	-	101
Acteocina sp.		_	_	-	-
Order: Heterostropha					
Family: Pyramidellidae					
Odostomia engonia		-	-	-	14
Order: Heterostropha					
Family: Pyramidellidae					
Turbonilla interrupta		-	-	-	-
Order: Neogastropoda					
Family: Columbellidae					
Astyris lunata		-	-	-	-
Nassarius vibex		-	14	-	-
Family: Conidae					
Pyrgocythara plicosa		•	-	-	-
Order: Neotaenioglossa					
Family: Calyptraeidae			40		
Crepidula fornicata		-	43	-	-
Crepidula plana Order: Neotaenioglossa		-	-	-	-
Family: Cerithiopsidae					
Cerithiopsis greenii		_	_	-	_
Order: Neotaenioglossa					_
Family: Epitoniidae		1			
Epitonium rupicola		_	_	_	-
Order: Unspecified					
Family: Unspecified					The state of the s
Gastropoda (LPIL)		-	-	-	29
Class: Bivalvia		1		1	

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## Macroinvertebrate Results Data Per Square Meter (Unpooled)

Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept 2010 Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station	LW03-SD508	LW03-SD509	LW03-SD510	LW03-SD511
Classification	Replicate Collection Date	LW03-SD508-00-10C	LW03-SD509-00-10C	LW03-SD510-00-10C	LW03-SD511-00-10C
Order: Arcoida	(((1849)))	EXCESSION CONTRACTOR DESCRIPTION OF THE PROPERTY OF THE PROPER			GOIS 1110
Family: Arcidae					
Anadara transversa		-	_		
Order: Mytiloida				_	-
Family: Mytilidae					
Amygdalum papyrium			_	_	_
Order: Ostreoida					_
Family: Anomiidae					
Anomia simplex		_	14	_	
Order: Ostreoida					
Family: Anomiidae					
Pododesmus rudis	:	-	14	-	_
Order: Ostreoida		i I			
Family: Ostreidae		i			
Crassostrea virginica		-	14	- -	_
Order: Pholadomyoida			The state of the s		
Family: Lyonsiidae					
Lyonsia hyalina		-	-	-	_
Order: Veneroida					
Family: Mactridae			Page		
Mactridae (LPIL)		=	_	-	-
Mulinia lateralis		29	-	-	-
Mulinia lateralis		<u>-</u>	-	-	-
Family: Petricolidae					
Petricolaria pholadiformis		<del>-</del>	-	-	-
Family: Solecurtidae					
Tagelus plebeius		-	-	-	-
Tagelus sp.		<u>.</u>	-	-	-
Family: Tellinidae					
Macoma tenta		-	-	-	29
Tellinidae (LPIL)		<u>-</u>	-	-	-
Family: Veneridae					
Gemma gemma		14	862	-	-
Order: Veneroida					
Family: Veneridae					
Mercenaria mercenaria		29	14	-	-
Order: Veneroida					
Family: Veneridae					
Pitar sp.		•	-	-	-
Veneridae (LPIL)		-	14	29	72
Order: Unspecified					
Family: Unspecified			14	!	
Bivalvia (LPIL)		- :	14		-
Phylum: Phoronida Class: Unspecified					
Order: Unspecified					
Family: Unspecified					
i aminy. Onspecified			(		

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Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic Classification	Station Replicate Collection Date	LW03-SD508 LW03-SD508-00-10C	LW03-SD509 LW03-SD509-00-10C	LW03-SD510 LW03-SD510-00-10C	LW03-SD511 LW03-SD511-00-10C
Phoronida (LPIL)	urandia automatika zardeninen derinakoja (elektriské kitár) elek	43		57	287
Phylum: Echinodermata					
Class: Ophiuroidea		!			L. Production of the Control of the
Order: Unspecified					
Family: Unspecified					
Ophiuroidea (LPIL)		-	-	-	-
Phylum: Chordata					A COLOR
Class: Cephalochordata		į.			A STATE OF THE STA
Order: Amphioxiformes					and the state of t
Family: Branchiostomatidae	•				
Branchiostoma sp.		-	14	-	-
No Organisms Present		-	-	-	-
Total Organisms		560	1336	388	848
Total Taxa		13	18	10	13



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## Macroinvertebrate Results Data Per Square Meter (Unpooled)

Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept 2010 Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station Replicate	LW03-SD512 LW03-SD512-00-10C	LW03-SD513 LW03-SD513-00-10C	LW03-SD514 LW03-SD514-00-10C	LW03-SD515
Classification	Collection Date	09/02/10	09/10/10	09/10/10	09/09/10
Phylum: Porifera	t (14 metro 44 Million) relacional ner mai restinuante Adelad (4 million trassigua	egosymmiaego zazum sinnego sa z transco manizone z zranisacizane z transmikiarin apo po nopropijem v vyvasna sz	an marine kang manyan kenganan mananan mananan manan manan manan manan kengan mengan mengan mengan mengan menga Terlah mengan mengan mengan mengan mengan mengan mengan mengan mengan mengan mengan mengan mengan mengan mengan		
Class: Unspecified					
Order: Unspecified		5 5 8 8			To a second
Family: Unspecified					
Porifera (LPIL)		_	-	_	_
Phylum: Cnidaria					
Class: Hydrozoa					
Order: Unspecified					
Family: Unspecified					
Hydrozoa (LPIL)		_	-	_	-
Class: Anthozoa					The state of the s
Order: Actiniaria					
Family: Unspecified		i i			
Actiniaria (LPIL)		: :	_	_	_
Actiniaria sp. A		_	_	_	_
Order: Unspecified					
Family: Unspecified					
Anthozoa (LPIL)		: ! !	_	_	_
Phylum: Nemertea					_
Class: Unspecified					
Order: Unspecified					
Family: Unspecified					
Nemertea (LPIL)		_			29
Nemertea sp. A (LPIL)		_	_	_	29
Nemertea sp. A (LPTL)		_	_	_	-
Nemertea sp. C (LPIL)		_	_	- [	-
Nemertea sp. D (LPIL)		_		articles as	-
Phylum: Annelida				_	-
Class: Polychaeta				i i	
Order: Aciculata					
Family: Dorvilleidae					
Dorvillea (Schistomeringos) re	udolphi	_		· É	
Dorvilleidae (LPIL)	иаогртп	<u> </u>	_	<u>-</u>	- -
Family: Eunicidae		-	_	- !	<u>-</u>
Marphysa sanguinea		_	_		
Family: Glyceridae				<del>-</del>	-
Glycera americana		<u>.</u>	-	_	_
Glycera dibranchiata		_	_	_	_
Glycera sp.		_	_	_	_
Ophioglycera sp.		_	_		
Family: Goniadidae		} } \$		_	-
Glycinde solitaria		14	_	_	43
Family: Hesionidae				1	70
Gyptis crypta			_	_	_
Hesionidae (LPIL)		<u>.</u>			 !
Podarke obscura		-		14	- 14
Family: Nereididae		·		; • • • • • • • • • • • • • • • • • • •	19
i anny. Nereididae			†		

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## Macroinvertebrate Results Data Per Square Meter (Unpooled)

Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

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Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station Replicate	LW03-SD512	LW03-SD513 LW03-SD513-00-10C	LW03-SD514	LW03-SD515
Classification	Collection Date	09/02/10	09/10/10	09/10/10	09/09/10
Laeonereis culveri	(14.440000 #1901111111111111111111111111111111			andika amendi miki mikimininti, yuu asaa ayaa ayaa ah ayaa ah ayaa ah ah ah ah ah ah ah ah ah ah ah ah a	O till delle dessammen sensen state state sensen sense i delever helse å er de ekserbirk de rette et an en en anne sen 
Neanthes succinea		-	14	-	-
Nereididae (LPIL)		14	-	-	-
Platynereis dumerilii		-	-	-	14
Family: Oenonidae					
Drilonereis longa		<u>-</u>	-	-	-
Family: Onuphidae					
Diopatra cuprea		-	-	-	-
Family: Phyllodocidae					
Eteone sp.		-	-	-	-
Eumida sanguinea		-	-	-	-
Phyllodoce mucosa		_	-	_	_
Phyllodocidae (LPIL)		-	-	_	-
Family: Polynoidae					
Lepidonotus sp.		-	-	_	-
Family: Syllidae			Assertation of the Control of the Co		
Grubeosyllis clavata		_	_	_	_
Syllidae (LPIL)		_		_	_
Order: Canalipalpata					
Family: Ampharetidae					
Ampharetidae (LPIL)		_			
Family: Chaetopteridae			_	-	-
				29	14
Spiochaetopterus costarum		-	-	29	14
Family: Cirratulidae					
Aphelochaeta sp.		-	-	-	-
Cirratulidae (LPIL)		-	-	-	14
Tharyx sp.		-	-	-	-
Family: Pectinariidae					
Pectinaria gouldii		-	-	-	-
Pectinaria sp.		-	-	-	-
Family: Sabellidae					
Demonax microphthalmus		± -	-	-	-
Sabellaria vulgaris		<del>-</del>	-	-	-
Sabellidae (LPIL)		-	-	-	-
Sabellinae (LPIL)		14	-	-	-
Family: Serpulidae					
Hydroides dianthus			-	-	-
Family: Serpulidae					
Hydroides diathus		-	-	-	-
Family: Serpulidae		i !			
Hydroides sp.		- -	-	-	-
Serpulidae (LPIL)		-	-	14	-
Family: Spionidae		*	- Augustus - Augustus		
Apoprionospio pygmaea		-	-	<u>-</u>	-
Dipolydora cauleri		-	-	•	-
Dipolydora socialis		: :	-	·	-
Marenzelleria viridis		_	_	_	14

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Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station	LW03-SD512	LW03-SD513	LW03-SD514	LW03-SD515
61 15 41	Replicate Collection Date	LW03-SD512-00-10C	LW03-SD513-00-10C	LW03-SD514-00-10C	LW03-SD515-00-10C
Minuspio sp.	1986 - PARES BARROLD STANDARD (1982-1982) (1982-1983) (1982-1983) (1982-1983) (1982-1983) (1982-1983) (1982-19		eggenze en spiele kronele i v sissannoù i savienning opinische en 1990 e 1-40-1 e 1900 i 11-44 (50 ciristia. —	P T A 4 Free Consideration and a substitution of the Greek Conference and the Conference	
Paraprionospio pinnata		57	-	-	29
Polydora cornuta		-	14	_	14
Pseudopolydora sp.		14	_	•	
Scolelepis texana		_	-	-	-
Spio sp.		_	_	_	-
Spionidae (LPIL)		_	_	_	-
Streblospio benedicti		14	-	57	72
Family: Terebellidae					
Loimia medusa		_	<u></u>	-	_
Loimia sp.		_	43	_	-
Pista cristata		-	-	-	_
Terebellidae (LPIL)		-	-	_	•
Order: Capitellida					
Family: Capitellidae					April 1000 and 1000 a
Capitella capitata complex Blake		-	216	72	29
Capitella jonesi			_	-	-
Capitella sp.		-	_	_	-
Capitellidae (LPIL)		_	-	_	-
Heteromastus filiformis			_	-	-
Mediomastus ambiseta		_	-	_	-
Mediomastus californiensis		-	-	-	-
Mediomastus sp.		-	-	-	-
Order: Orbiniida					
Family: Orbiniidae					
Leitoscoloplos fragilis		-	_	_	-
Leitoscoloplos sp.		-	-	-	-
Orbiniidae (LPIL)		·	-	-	-
Scoloplos rubra		-	-	-	-
Order: Phyllodocida					
Family: Pilargidae					
Sigambra tentaculata		<u>-</u>	-	-	-
Order: Unspecified					
Family: Maldanidae				And the same of th	
Clymenella torquata		-	-	-	-
Class: Clitellata					
Order: Haplotaxida					
Family: Naididae					
Paranais frici		_	-	-	-
Family: Tubificoid Naididae					
Tubificoid Naididae imm. w/o hair	setae (LPIL)	-	-	-	-
Tubificoides sp.	,	-	-	-	-
Phylum: Arthropoda					
Class: Malacostraca					
Order: Amphipoda					
Family: Aoridae		<u>;</u>		•	
Aoridae (LPIL)		-	-	-	14

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Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station	LW03-SD512	LW03-SD513	LW03-SD514	LW03-SD515
Classification	Replicate Collection Date	LW03-SD512-00-10C	LW03-SD513-00-10C	LW03-SD514-00-10C	LW03-SD515-00-10C
Family: Corophiidae		t 1909 (1908) (1904 A 447 (1909) (1904) A south ann a' deireann am bhí inn bhailte a tha Antaidh an achtail an	adoveratilitzeramen o overhildari tanamalinin talenzuezuezuezuezuezuezuezuezuezuezuez		
Monocorophium acherusicum		_	_		
Monocorophium insidiosum		_	_		-
Monocorophium sp.		_	_	-	-
Family: Liljeborgiidae				-	-
Listriella clymenellae		_	_	_	-
Order: Cumacea					
Family: Bodotriidae					
Cyclaspis varians		-	_	_	_
Family: Leuconidae					_
Leucon americanus		-	_	_	_
Family: Unspecified					
Cumacea (LPIL)		_	•	_	_
Order: Decapoda					
Family: Alpheidae					
Alpheus sp.		<u>-</u>	_	_	-
Family: Palaemonidae					
Palaemonetes sp.			-	-	-
Family: Panopeidae					
Panopeidae (LPIL)		_	-	-	-
Panopeus herbstii		_	_	-	-
Rhithropanopeus harrisii		_	-	-	-
Family: Pinnotheridae					
Pinnixa sp.		-	-	-	-
Family: Portunidae		:			
Callinectes sp.		-	-	-	-
Portunidae (LPIL)		-	-	-	-
Family: Unspecified					
Decapoda (LPIL)		-	-	-	-
Decapoda (zoea)		-	-	-	-
Decapoda zoea (larva)		-	-	-	-
Order: Isopoda					
Family: Idoteidae		;			
Edotia triloba		-	-	-	-
Order: Leptostraca					7
Family: Unspecified					
Leptostraca (LPIL)			-	-	-
Order: Mysida					· management (1)
Family: Mysidae		1 5 1 1			
Americamysis bigelowi		-	-	-	-
Americamysis sp.		<b>-</b>	-	-	-
Mysidae (LPIL)		=	-	-	-
Neomysis americana		-	-	-	-
Family: Unspecified					
Mysidacea (LPIL)		• :	-	-	-
Order: Stomatopoda					
Family: Squillidae					

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### Macroinvertebrate Results Data Per Square Meter (Unpooled)

Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station	LW03-SD512	LW03-SD513	LW03-SD514	LW03-SD515
Classification	Collection Date	LW03-SD512-00-10C 09/02/10	09/10/10	LW03-SD514-00-10C	LW03-SD515-00-10C 09/09/10
Squilla empusa		an augustys yr yddig gyn y gann y gymraf yn gant y gann ar ar ar ar ar ar ar ar ar ar ar ar ar			erentőrehlőtenba szárasterunássalatótáról körk ísbá ísbá ísbállátásáráktórálárnatót vesterentelyszend tazo
Class: Maxillopoda					
Order: Sessilia					
Family: Balanoidea					
Balanus improvisus		-	•	_	-
Family: Balanomorpha		i L			
Balanomorpha (LPIL)		-	-	-	-
Class: Entognatha					
Order: Collembola					
Family: Unspecified					
Collembola (LPIL)		-	-	-	-
Class: Unspecified					
Order: Unspecified		1			
Family: Unspecified					
Crustacea (LPIL)		-	-	-	-
Phylum: Mollusca					Table Congress
Class: Gastropoda					
Order: Cephalaspidea					
Family: Cylichnidae					
Acteocina canaliculata		-	-	-	-
Acteocina sp.		-	-	-	-
Order: Heterostropha					
Family: Pyramidellidae					
Odostomia engonia		•	-	-	-
Order: Heterostropha					- Anna Anna Anna Anna Anna Anna Anna Ann
Family: Pyramidellidae					
Turbonilla interrupta		-	-	-	-
Order: Neogastropoda					
Family: Columbellidae					
Astyris lunata Nassarius vibex		•	_	-	-
Family: Conidae		-	-	_	-
Pyrgocythara plicosa			_		
Order: Neotaenioglossa					, -
Family: Calyptraeidae					
Crepidula fornicata		_	_	-	-
Crepidula plana		-	_	_	_
Order: Neotaenioglossa					
Family: Cerithiopsidae					
Cerithiopsis greenii		_	-	-	-
Order: Neotaenioglossa					
Family: Epitoniidae					
Epitonium rupicola		-	-	-	-
Order: Unspecified					
Family: Unspecified				West of the second seco	
Gastropoda (LPIL)		-	-	•	-
Class: Bivalvia					
					•

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## Macroinvertebrate Results Data Per Square Meter (Unpooled)

Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic Classification	Station Replicate Collection Date	LW03-SD512 LW03-SD512-00-10C 09/02/10	LW03-SD513 LW03-SD513-00-10C 09/10/10	LW03-SD514 LW03-SD514-00-10C 09/10/10	LW03-SD515 LW03-SD515-00-100 09/09/10
Order: Arcoida			and order and a consist of the first on the months and a construction of the construct	TOTAL CONTROL	
Family: Arcidae					
Anadara transversa		-	-	-	-
Order: Mytiloida		3 3 4 7 4			
Family: Mytilidae					
Amygdalum papyrium		-	-	-	-
Order: Ostreoida					
Family: Anomiidae					
Anomia simplex		-	-	-	-
Order: Ostreoida					
Family: Anomiidae					
Pododesmus rudis		-	-		-
Order: Ostreoida					
Family: Ostreidae					
Crassostrea virginica		-	-	-	-
Order: Pholadomyoida					
Family: Lyonsiidae					1.0
Lyonsia hyalina		-	-	-	-
Order: Veneroida					
Family: Mactridae					
Mactridae (LPIL)		-	_	-	-
Mulinia lateralis		-	-	-	-
Mulinia lateralis		-	-	-	
Family: Petricolidae					
Petricolaria pholadiformis		<del>-</del>	-	-	•
Family: Solecurtidae					
Tagelus plebeius		-	-	-	-
Tagelus sp.		-	-	-	-
Family: Tellinidae					
Macoma tenta		_	-	-	-
Tellinidae (LPIL)		•	-	-	_
Family: Veneridae					
Gemma gemma		<u>-</u>	-	-	-
Order: Veneroida					
Family: Veneridae					
Mercenaria mercenaria		-	-	-	-
Order: Veneroida		1			
Family: Veneridae					
Pitar sp.		-	-	_	-
Veneridae (LPIL)		_	-	_	-
Order: Unspecified		[			
Family: Unspecified		t .			
Bivalvia (LPIL)		<u>-</u>	-	<u>-</u>	14
Phylum: Phoronida					
Class: Unspecified				i I	
Order: Unspecified		1			
Family: Unspecified		i			

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Sample Method: Petite Ponar (x3)



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### Macroinvertebrate Results Data Per Square Meter (Unpooled)

Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

Clean III Report Date: 11/08/2010
Clean Aug-Sept

2010

Taxonomic Classification	Station Replicate Collection Date	LW03-SD512 LW03-SD512-00-10C 09/02/10	LW03-SD513 LW03-SD513-00-10C 09/10/10	LW03-SD514 LW03-SD514-00-10C	LW03-SD515 LW03-SD515-00-10C
Phoronida (LPIL)	CONTROLLED ARTERIORIS CONTROLLED ANTONIO ANTONIO ANTONIO ANTONIO ANTONIO ANTONIO ANTONIO ANTONIO ANTONIO ANTONI	gistekkad digin kabiyake ya cayalang kabiyakiyakiya kabayak i karcilali kisike 2 SAH da cisir di 19 kisikeda 	14		57
Phylum: Echinodermata					
Class: Ophiuroidea					
Order: Unspecified					
Family: Unspecified					
Ophiuroidea (LPIL)		-	-	-	-
Phylum: Chordata					
Class: Cephalochordata					
Order: Amphioxiformes					
Family: Branchiostomatidae	<b>!</b>				
Branchiostoma sp.		-	-	-	-
No Organisms Present		-	-	-	-
Total Organisms		129	302	187	374
Total Taxa		6	5	5	14



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Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Replicate ollection Date	LW03-SD516-00-10C 09/09/10	LW03-SD517-00-10C 08/31/10	LW03-SD518-00-10C 08/31/10	LW03-SD519-00-10C 09/02/10
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Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept 2010 Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

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xonomic assification	Station Replicate Collection Date	LW03-SD516 LW03-SD516-00-10C	LW03-SD517 LW03-SD517-00-10C	LW03-SD518 LW03-SD518-00-10C	LW03-SD519 LW03-SD519-00-10
Laeonereis culveri	hazen Helle Ballo (balling 1874) (18 st. to to 40 ph) (4 dans 18 by 4 delen 18 40 ph) (18 dans 18 ph)				U9/U2/TU
Neanthes succinea		1	_	_	_
Nereididae (LPIL)		14	_	_	-
Platynereis dumerilii			_	_	-
Family: Oenonidae			_	-	-
Drilonereis longa		_	_		
Family: Onuphidae			_	-	-
Diopatra cuprea		1			1.1
Family: Phyllodocidae		-	-	<u>-</u>	14
		1			
Eteone sp.		-	-	-	-
Eumida sanguinea		-	-		-
Phyllodoce mucosa		-	-	-	-
Phyllodocidae (LPIL)		-	-	-	-
Family: Polynoidae					
Lepidonotus sp.		-	-	The second secon	-
Family: Syllidae					
Grubeosyllis clavata		-	-	-	-
Syllidae (LPIL)		-	-	-	-
Order: Canalipalpata					
Family: Ampharetidae					
Ampharetidae (LPIL)		-	-	-	-
Family: Chaetopteridae					
Spiochaetopterus costarum		-	-	-	29
Family: Cirratulidae					
Aphelochaeta sp.		-	-	-	-
Cirratulidae (LPIL)		-	-	-	-
Tharyx sp.		-	-		-
Family: Pectinariidae					
Pectinaria gouldii		<u>-</u>	_	-	-
Pectinaria sp.		-	-	_	_
Family: Sabellidae					
Demonax microphthalmus		_	_	_	_
Sabellaria vulgaris		_	_	_	_
Sabellidae (LPIL)		i -	-	_	_
Sabellinae (LPIL)		-	_	_	_
Family: Serpulidae					<del>-</del>
Hydroides dianthus		<u> </u>	_	_	
Family: Serpulidae		: - !	_	-	<del>-</del>
Hydroides diathus		_			
Family: Serpulidae		-	-	-	-
Hydroides sp.		- -	-	-	-
Serpulidae (LPIL)		-	-	-	-
Family: Spionidae		1	ALL IN COLUMN TO THE PARTY OF T		
Apoprionospio pygmaea		-	-	-	-
Dipolydora cauleri		-	-	-	-
Dipolydora socialis		-	-	-	-
Marenzelleria viridis		<b>-</b>	-	•	-

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Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic Classification	Station Replicate Collection Date	LW03-SD516 LW03-SD516-00-10C	LW03-SD517 LW03-SD517-00-10C	LW03-SD518 LW03-SD518-00-10C 08/31/10	LW03-SD519 LW03-SD519-00-100 09/02/10
Minuspio sp.		no (en el escentro de colonidario de comencia comencia de mensión el escentro de consecuencia de consecuencia de comencia de comencia de consecuencia de conse	en en en en en en en en en en en en en e	er occident to be de la Colombia de la francisca de la colombia del colombia de la colombia del colombia de la colombia del la colombia de la colombia de la colombia de la colombia de la colombia de la colombia del la colombia de la colombia de la colombia del la col	
Paraprionospio pinnata		_	_	-	43
Polydora cornuta		-	-	-	-
Pseudopolydora sp.		-	_	-	29
Scolelepis texana		14	-	-	-
Spio sp.		_	-	_	-
Spionidae (LPIL)		-	-	_	-
Streblospio benedicti		14	_	_	-
Family: Terebellidae		ļ			
Loimia medusa		-	_	-	_
Loimia sp.		_		_	_
Pista cristata		_	-	_	_
Terebellidae (LPIL)		_	-	_	_
Order: Capitellida					_
Family: Capitellidae		ì			
Capitella capitata complex Blake		29	_		
Capitella jonesi		-		- I	-
		: i	_	_	-
Capitella sp.		-	_	-	-
Capitellidae (LPIL)		14	-	-	-
Heteromastus filiformis		14	-	-	-
Mediomastus ambiseta		-	-	-	<u>-</u>
Mediomastus californiensis		-	-	-	-
Mediomastus sp.		14	-	-	-
Order: Orbiniida					
Family: Orbiniidae					
Leitoscoloplos fragilis		-	-	-	-
Leitoscoloplos sp.		-	-	-	-
Orbiniidae (LPIL)		i =	-	-	-
Scoloplos rubra		<del>-</del>	-	-	-
Order: Phyllodocida					
Family: Pilargidae					
Sigambra tentaculata		-	-	-	-
Order: Unspecified					
Family: Maldanidae					
Clymenella torquata		-	-	-	-
Class: Clitellata		<u> </u>			
Order: Haplotaxida					
Family: Naididae					
Paranais frici		- -	-	14	-
Family: Tubificoid Naididae		i i		1 2	VPD-VPBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBB
Tubificoid Naididae imm. w/o hair	setae (LPIL)	-	-	<del>-</del>	-
Tubificoides sp.		-	-	-	-
Phylum: Arthropoda					
Class: Malacostraca					
Order: Amphipoda					
Family: Aoridae					
Aoridae (LPIL)		-	_	_	_

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Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept 2010 Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

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axonomic lassification	Station Replicate	LW03-SD516 LW03-SD516-00-10C	LW03-SD517 LW03-SD517-00-10C	LW03-SD518 LW03-SD518-00-10C	LW03-SD519 LW03-SD519-00-10
	Collection Date	09/09/10	08/31/10	08/31/10	09/02/10
Family: Corophiidae					
Monocorophium acherusicum			-	-	-
Monocorophium insidiosum		-	-	<u>-</u>	-
Monocorophium sp.		-	-	-	-
Family: Liljeborgiidae					
Listriella clymenellae		-	-	<u>-</u>	-
Order: Cumacea					
Family: Bodotriidae					
Cyclaspis varians		-	-	-	-
Family: Leuconidae					
Leucon americanus		-	-	es es	_
Family: Unspecified					
Cumacea (LPIL)		-	-	_	-
Order: Decapoda					
Family: Alpheidae					
Alpheus sp.		-	-	_	_
Family: Palaemonidae					
Palaemonetes sp.		_	_	-	_
Family: Panopeidae					
Panopeidae (LPIL)		_	_	_	_
Panopeus herbstii		_	-	_	_
Rhithropanopeus harrisii			_	_	_
Family: Pinnotheridae					_
Pinnixa sp.			_	_	
Family: Portunidae				-	-
Callinectes sp.		_			
Portunidae (LPIL)		14	_	-	
Family: Unspecified		, I <del>-1</del>	-	-	
Decapoda (LPIL)				!	
		<u>-</u>	-	-	-
Decapoda (zoea)		-	-	29	-
Decapoda zoea (larva)		-	-	-	-
Order: Isopoda					
Family: Idoteidae		1		:	
Edotia triloba		-	-	<del>-</del>	-
Order: Leptostraca					
Family: Unspecified					
Leptostraca (LPIL)		•	-	-	-
Order: Mysida		i :			
Family: Mysidae					
Americamysis bigelowi		: <b>-</b>	-	-	-
Americamysis sp.		-	-	-	-
Mysidae (LPIL)		<u>-</u>	-	-	-
Neomysis americana			-	-	-
Family: Unspecified					
Mysidacea (LPIL)		. •	-		-
Order: Stomatopoda					
Family: Squillidae					

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Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station		LW03-SD517	LW03-SD518	LW03-SD519
Classification	Collection Date	LW03-SD516-00-10C	LW03-SD517-00-10C 08/31/10	LW03-SD518-00-10C 08/31/10	LW03-SD519-00-10C
Squilla empusa	n i landa newenika di keleren i rekat kitaren erendaken iran di milan kel	And Ald Collection and Andrew States and Andrew		oddelli V liniahen Rillio A.C. Physicanica con communica en machine con missima can castello e —	
Class: Maxillopoda		1			
Order: Sessilia					
Family: Balanoidea					
Balanus improvisus		-	-	-	-
Family: Balanomorpha					A VIII A CONTRACTOR OF THE CON
Balanomorpha (LPIL)		<u>-</u>	_	-	-
Class: Entognatha					Oliv I complete
Order: Collembola					
Family: Unspecified					
Collembola (LPIL)		-	-	-	-
Class: Unspecified					a Livery de la companya de la compan
Order: Unspecified					
Family: Unspecified					
Crustacea (LPIL)		-	-	-	-
Phylum: Mollusca					Article Exhaust
Class: Gastropoda					
Order: Cephalaspidea					
Family: Cylichnidae					
Acteocina canaliculata		14	-	<u>-</u>	-
Acteocina sp.		-	-		-
Order: Heterostropha					OO PERSONAL PROPERTY OF THE PR
Family: Pyramidellidae					
Odostomia engonia		-	-	-	-
Order: Heterostropha					
Family: Pyramidellidae					
Turbonilla interrupta		-	-	-	-
Order: Neogastropoda					
Family: Columbellidae					
Astyris lunata		<u>-</u>	-	-	-
Nassarius vibex		14	-	-	-
Family: Conidae		\$ †			
Pyrgocythara plicosa		-	-	•	-
Order: Neotaenioglossa		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \			
Family: Calyptraeidae			T		
Crepidula fornicata		-	-	-	-
Crepidula plana		-	-	-	-
Order: Neotaenioglossa				1	
Family: Cerithiopsidae					
Cerithiopsis greenii		-	-	-	-
Order: Neotaenioglossa		1			
Family: Epitoniidae					
Epitonium rupicola		-	-	-	-
Order: Unspecified		· ·			The second
Family: Unspecified					The above
Gastropoda (LPIL)		-	-	-	-
Class: Bivalvia		t ·			

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Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

2010

Taxonomic Classification	Station Replicate Collection Date	LW03-SD516 LW03-SD516-00-10C	LW03-SD517 LW03-SD517-00-10C	LW03-SD518 LW03-SD518-00-10C	LW03-SD519 LW03-SD519-00-100
Order: Arcoida	in vess secondarios de secondarios d	Data In	VOIS 1/1U	U8/31/1U	U9/U2/10
Family: Arcidae					
Anadara transversa		_	_		
Order: Mytiloida				-	-
Family: Mytilidae				A DEPOSITE OF THE PROPERTY OF	
Amygdalum papyrium		-	-	_	_
Order: Ostreoida					-
Family: Anomiidae					
Anomia simplex		-	_	_	_
Order: Ostreoida					
Family: Anomiidae					
Pododesmus rudis		-	-	-	_
Order: Ostreoida					
Family: Ostreidae				N. P. STANDARD	
Crassostrea virginica		-	-	-	-
Order: Pholadomyoida					
Family: Lyonsiidae					
Lyonsia hyalina		-	-	-	-
Order: Veneroida					
Family: Mactridae					
Mactridae (LPIL)		-	<del>-</del>	-	-
Mulinia lateralis		-	-	-	-
Mulinia lateralis		!	-	-	-
Family: Petricolidae					
Petricolaria pholadiformis			<u>-</u>	-	-
Family: Solecurtidae					
Tagelus plebeius		-	-	-	-
<i>Tagelus</i> sp.		-	-	-	-
Family: Tellinidae					
Macoma tenta		-	-	-	-
Tellinidae (LPIL)		14	-	_	-
Family: Veneridae					
Gemma gemma		244	14	<u>-</u>	-
Order: Veneroida					
Family: Veneridae					
Mercenaria mercenaria		: <del>"</del>	-	-	-
Order: Veneroida Family: Veneridae					
<b>5</b> 24		•			
Pitar sp. Veneridae (LDII.)		- 29	<del>-</del>	-	-
Veneridae (LPIL) Order: Unspecified		_29	-	-	-
Family: Unspecified					
Bivalvia (LPIL)		:	_	_	
Phylum: Phoronida			-	. <del>.</del>	<del>-</del>
Class: Unspecified				4 5 1	
Order: Unspecified					
Family: Unspecified					
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Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug.

Sample Group: Navy Clean Aug-Sept

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

2010

Taxonomic Classification	Station Replicate Collection Date	LW03-SD516-00-10C	LW03-SD517 LW03-SD517-00-10C 08/31/10	LW03-SD518 LW03-SD518-00-10C 08/31/10	LW03-SD519 LW03-SD519-00-10C 09/02/10
Phoronida (LPIL)		57	### ### ##############################	e de California de Cambrillo (California de California de California de California de California de California 	
Phylum: Echinodermata					
Class: Ophiuroidea					
Order: Unspecified					
Family: Unspecified					
Ophiuroidea (LPIL)		-	-	-	-
Phylum: Chordata					
Class: Cephalochordata					
Order: Amphioxiformes					
Family: Branchiostomatidae	!				
Branchiostoma sp.		-	-	-	-
No Organisms Present		-	-	-	-
Total Organisms		560	29	57	115
Total Taxa		14	2	3	4



Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station Replicate	LW03-SD520-00-10C	LW03-SD521 LW03-SD521-00-10C	LW03-SD522 LW03-SD522-00-10C	LW03-SD523 LW03-SD523-00-100
<b>Classification</b>	ollection Date	09/10/10	09/12/10	09/09/10	09/09/10
Phylum: Porifera					, m. m. 1990 200 00 00 00 00 00 00 00 00 00 00 00 0
Class: Unspecified					
Order: Unspecified					
Family: Unspecified				! !	
Porifera (LPIL)		-	14	-	-
Phylum: Cnidaria					
Class: Hydrozoa					
Order: Unspecified					
Family: Unspecified		i			
Hydrozoa (LPIL)		-	-	-	-
Class: Anthozoa Order: Actiniaria					
		de la constant de la			
Family: Unspecified Actiniaria (LPIL)		_	_	<u>_</u>	_
Actiniaria sp. A		_	_		
Order: Unspecified					-
Family: Unspecified					
Anthozoa (LPIL)		_	_	-	_
Phylum: Nemertea					
Class: Unspecified					
Order: Unspecified					
Family: Unspecified					
Nemertea (LPIL)		_	_	-	_
Nemertea sp. A (LPIL)		-	-	_	_
Nemertea sp. B (LPIL)		<u>-</u>	-	-	_
Nemertea sp. C (LPIL)			-	_	_
Nemertea sp. D (LPIL)		-	-	-	-
Phylum: Annelida					
Class: Polychaeta					
Order: Aciculata					
Family: Dorvilleidae					
Dorvillea (Schistomeringos) rudolp	hi	-	14	-	-
Dorvilleidae (LPIL)		_	-	-	-
Family: Eunicidae					
Marphysa sanguinea		43	-	-	-
Family: Glyceridae					2
Glycera americana		-	-	-	-
Glycera dibranchiata		-	-	14	-
Glycera sp.		-	-	-	-
Ophioglycera sp.		-	-	-	-
Family: Goniadidae					
Glycinde solitaria		-	-	43	57
Family: Hesionidae					
Gyptis crypta		57	-	-	14
Hesionidae (LPIL)		57	14	-	-
Podarke obscura		187	-	-	29
Family: Nereididae		1	3	1	

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Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

xonomic assification	Station Replicate Collection Date	LW03-SD520 LW03-SD520-00-10C 09/10/10	LW03-SD521 LW03-SD521-00-10C 09/12/10	LW03-SD522 LW03-SD522-00-10C 09/09/10	LW03-SD523 LW03-SD523-00-10 09/09/10
Laeonereis culveri	Marakelyapa PACC Senticles in the Copies Area Academy and Architecture (1964).		a de cue está con a difeitamente el ciún de en de destructivos finales de como que a debito de del destructuro color d —		29
Neanthes succinea		14	14	-	14
Nereididae (LPIL)		-	-	-	101
Platynereis dumerilii		<u>-</u>	-	-	14
Family: Oenonidae					
Drilonereis longa		-	-	-	-
Family: Onuphidae					
Diopatra cuprea		-	-		-
Family: Phyllodocidae					
Eteone sp.		<u>-</u>	-	•	-
Eumida sanguinea		-	<u>-</u>	_	_
Phyllodoce mucosa		· :	_		_
Phyllodocidae (LPIL)		-	_	_	_
Family: Polynoidae					
Lepidonotus sp.			-	_	-
Family: Syllidae					
Grubeosyllis clavata			-	_	_
Syllidae (LPIL)		_	_	_	
Order: Canalipalpata					_
Family: Ampharetidae					
Ampharetidae (LPIL)					
		-	-	-	-
Family: Chaetopteridae		43	29	14	
Spiochaetopterus costarum		45	29	14	_
Family: Cirratulidae					4.4
Aphelochaeta sp.		-	-	-	14
Cirratulidae (LPIL)		-	14	14	29
Tharyx sp.		· -	-	-	-
Family: Pectinariidae				4.4	•
Pectinaria gouldii		•	-	14	29
Pectinaria sp.		-	-	-	-
Family: Sabellidae					and Control of Control
Demonax microphthalmus		-	-	-	-
Sabellaria vulgaris		<del>-</del>	<del>-</del>	-	-
Sabellidae (LPIL)		· •	14	-	-
Sabellinae (LPIL)		-	-	-	_
Family: Serpulidae		1			
Hydroides dianthus		-	29	-	14
Family: Serpulidae					
Hydroides diathus		-	-	-	-
Family: Serpulidae					The state of the s
Hydroides sp.		· -	-	-	43
Serpulidae (LPIL)		-	-	-	-
Family: Spionidae					To come analysis of
Apoprionospio pygmaea		<del>-</del>	-	-	_
Dipolydora cauleri		. 29	-	-	-
Dipolydora socialis		· .	-	-	-
Marenzelleria viridis		<u>-</u>	_	-	-

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# Macroinvertebrate Results Data Per Square Meter (Unpooled)

Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

2010

Taxonomic	Station Replicate	LW03-SD520	LW03-SD521	LW03-SD522	LW03-SD523
Classification co	ellection Date	09/10/10	09/12/10	LW03-SD522-00-10C	09/09/10
Minuspio sp.	i territaken erran ili terkili kalenda adarek	эн оны н бөв того н дөөгө н бөв н бөв на бөв нь бөв нь наруу уургаагаан оны на такжа такжа такжа такжа такжа —	titet kielet er er ein 1900 er eil till till till till kommen och som statiskender, soch en medete betäteldered 	Printing (Printing Arganic Sales) des Entended (155 à entended (1600),	
Paraprionospio pinnata		-	29	29	29
Polydora cornuta		57	29	-	29
Pseudopolydora sp.		: -	-	-	-
Scolelepis texana		-	-	-	-
Spio sp.		-	-	-	-
Spionidae (LPIL)		14	-	-	14
Streblospio benedicti		201	57	201	-
Family: Terebellidae					
Loimia medusa		-	-	-	-
Loimia sp.		-	-	-	-
Pista cristata		72	29	<u>-</u>	-
Terebellidae (LPIL)		-	-	29	-
Order: Capitellida					
Family: Capitellidae		: !			
Capitella capitata complex Blake		101	216	14	675
Capitella jonesi		29	14	29	43
Capitella sp.		-	-	-	-
Capitellidae (LPIL)		-	-	-	-
Heteromastus filiformis		-	-	_	14
Mediomastus ambiseta		101	-	-	-
Mediomastus californiensis		-	-	-	-
Mediomastus sp.		43	-	14	72
Order: Orbiniida					
Family: Orbiniidae		i (			
Leitoscoloplos fragilis		-	-	-	_
Leitoscoloplos sp.		-	_	-	-
Orbiniidae (LPIL)		-	-	-	-
Scolopios rubra		-	-	14	-
Order: Phyllodocida					
Family: Pilargidae					
Sigambra tentaculata		-	-	-	_
Order: Unspecified		: :			
Family: Maldanidae					
Clymenella torquata		-	-	-	14
Class: Clitellata					
Order: Haplotaxida					
Family: Naididae					
Paranais frici		<u>-</u>	-	-	-
Family: Tubificoid Naididae					
Tubificoid Naididae imm. w/o hair se	tae (LPIL)	-	-	_	_
Tubificoides sp.		359	-	-	_
Phylum: Arthropoda					
Class: Malacostraca					
Order: Amphipoda					
Family: Aoridae					
Aoridae (LPIL)		. •	-	_	14

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Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic Classification	Station Replicate Collection Date	LW03-SD520 LW03-SD520-00-10C	LW03-SD521 LW03-SD521-00-10C		
andrians bandurbry - Manthaltengane and Milliabell (1986) and a company of the co		09/10/10	09/12/10	09/09/10	09/09/10
Family: Corophildae					
Monocorophium acherusicum		29	-	-	-
Monocorophium insidiosum		14	-	-	-
Monocorophium sp.		187	-	-	-
Family: Liljeborgiidae					
Listriella clymenellae		-	-	14	-
Order: Cumacea					
Family: Bodotriidae					
Cyclaspis varians		-	-	-	-
Family: Leuconidae					
Leucon americanus		-	-	-	-
Family: Unspecified		Î.			
Cumacea (LPIL)		-	-	-	-
Order: Decapoda					
Family: Alpheidae					
Alpheus sp.		-	-	-	-
Family: Palaemonidae					
Palaemonetes sp.		-	-	-	14
Family: Panopeidae					
Panopeidae (LPIL)		14	-	-	14
Panopeus herbstii		-	-	-	14
Rhithropanopeus harrisii		-	-	-	29
Family: Pinnotheridae					
Pinnixa sp.		-	-	-	-
Family: Portunidae					
Callinectes sp.		-	-	-	14
Portunidae (LPIL)		-	-	-	-
Family: Unspecified					
Decapoda (LPIL)		-	-	-	-
Decapoda (zoea)		-	-	-	-
Decapoda zoea (larva)		<u> </u>	-	-	=
Order: Isopoda					
Family: Idoteidae					
Edotia triloba		-	-	-	-
Order: Leptostraca					
Family: Unspecified					
Leptostraca (LPIL)		-	-	-	-
Order: Mysida		•			
Family: Mysidae		* · · · · · · · · · · · · · · · · · · ·			
Americamysis bigelowi		-	-	-	-
Americamysis sp.		-	-	-	-
Mysidae (LPIL)		-	-	-	-
Neomysis americana		· _	-	-	-
Family: Unspecified					
Mysidacea (LPIL)		- -	-	-	-
Order: Stomatopoda					
Family: Squillidae					

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Gainesville, FL 32608

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# Macroinvertebrate Results Data Per Square Meter (Unpooled)

Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic Classification	Station Replicate Collection Date	LW03-SD520 LW03-SD520-00-10C	LW03-SD521 LW03-SD521-00-10C	LW03-SD522 LW03-SD522-00-10C 09/09/10	LW03-SD523 LW03-SD523-00-10C
Squilla empusa	n, armanuna erateka tahun tahun ke disakkan kanggan gangg			ner verter et de executat d'information de la completation de la finance de la completation de la finance de l 	of the California All Contracts of California California (California)
Class: Maxillopoda					
Order: Sessilia					
Family: Balanoidea					
Balanus improvisus		-	-	-	43
Family: Balanomorpha					
Balanomorpha (LPIL)		-	14	-	<u>-</u>
Class: Entognatha					
Order: Collembola					
Family: Unspecified					
Collembola (LPIL)		-	14	-	-
Class: Unspecified					
Order: Unspecified					
Family: Unspecified		-			
Crustacea (LPIL)		-	-	-	-
Phylum: Mollusca		1			
Class: Gastropoda					
Order: Cephalaspidea					
Family: Cylichnidae					
Acteocina canaliculata		-	-	-	-
Acteocina sp.		<u>.</u>	-	-	-
Order: Heterostropha		i I			
Family: Pyramidellidae					
Odostomia engonia		-	-	-	-
Order: Heterostropha					
Family: Pyramidellidae					
Turbonilla interrupta		-	-	-	-
Order: Neogastropoda		i i			
Family: Columbellidae					
Astyris lunata		-	-	-	-
Nassarius vibex		-	-	-	-
Family: Conidae					
Pyrgocythara plicosa		-	•	-	-
Order: Neotaenioglossa		r 1			
Family: Calyptraeidae					
Crepidula fornicata		-	-	-	57
Crepidula plana			-	-	-
Order: Neotaenioglossa		1			
Family: Cerithiopsidae		:		1	
Cerithiopsis greenii		-	-	-	-
Order: Neotaenioglossa					
Family: Epitoniidae					
Epitonium rupicola		-	-	-	-
Order: Unspecified				1	
Family: Unspecified				İ	
Gastropoda (LPIL)		-	-	-	-
Class: Bivalvia					

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Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

<b>T</b>	01-11-1	LW03-SD520	LW03-SD521	LW03-SD522	1.WO3 CDE33
Taxonomic	Station Replicate		LW03-SD521 LW03-SD521-00-10C		LW03-SD523
Classification	Collection Date	09/10/10	09/12/10	09/09/10	09/09/10
Order: Arcoida			economia de desta de la comercia de la encolación de la distalación de Comerción de travérses del conservación	a de com se militar de la America de materia de materia de materia de como como como como como como como com	\$2000000000000000000000000000000000000
Family: Arcidae					
Anadara transversa		=	<del>-</del>	-	-
Order: Mytiloida					
Family: Mytilidae					
Amygdalum papyrium		_	_	_	_
Order: Ostreoida					
Family: Anomiidae					
Anomia simplex		-	-	-	-
Order: Ostreoida					
Family: Anomiidae					
Pododesmus rudis		-	-	-	14
Order: Ostreoida					001000
Family: Ostreidae					
Crassostrea virginica		<u>-</u>	-	-	14
Order: Pholadomyoida					
Family: Lyonsiidae					
Lyonsia hyalina		-	-	-	-
Order: Veneroida					
Family: Mactridae					
Mactridae (LPIL)		_	-	-	_
Mulinia lateralis		-	-	-	-
Mulinia lateralis		-	-	_	_
Family: Petricolidae					
Petricolaria pholadiformis		_	_	-	_
Family: Solecurtidae					
Tagelus plebeius		-	-	-	_
Tagelus sp.		-	_	_	43
Family: Tellinidae				· · · · · · · · · · · · · · · · · · ·	
Macoma tenta			-	-	-
Tellinidae (LPIL)		-	-		-
Family: Veneridae				Table Victor of	
Gemma gemma		•	-	29	216
Order: Veneroida		· i			
Family: Veneridae			A CONTRACTOR OF THE CONTRACTOR		
Mercenaria mercenaria		-	-	-	_
Order: Veneroida					<u>.</u>
Family: Veneridae					
Pitar sp.		-	-	-	-
Veneridae (LPIL)		-	14	14	57
Order: Unspecified					
Family: Unspecified				1	
Bivalvia (LPIL)		: :	14	29	29
Phylum: Phoronida				1	
Class: Unspecified			- Primary and Control		
Order: Unspecified				) }	
Family: Unspecified					
1					

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No Organisms Present Total Organisms

Total Taxa

#### Macroinvertebrate Results Data Per Square Meter (Unpooled)

575

Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept 2010 Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

761

1983

35

Taxonomic Classification	Station Replicate Collection Date	LW03-SD520 LW03-SD520-00-10C 09/10/10	LW03-SD521 LW03-SD521-00-10C 09/12/10	LW03-SD522 LW03-SD522-00-10C	LW03-SD523 LW03-SD523-00-10C
Phoronida (LPIL)	and the second s			244	129
Phylum: Echinodermata					
Class: Ophiuroidea					+ management
Order: Unspecified					A PA
Family: Unspecified		-			
Ophiuroidea (LPIL)		-	-	-	•
Phylum: Chordata			ADDODO		
Class: Cephalochordata					
Order: Amphioxiformes					
Family: Branchiostomatida	Э				
Branchiostoma sp.		-	_	-	-

1652

20



Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic Classification	Station Replicate Collection Date	LW03-SD525-00-10C	LW03-SD526 LW03-SD526-00-10C	LW03-SD527 LW03-SD527-00-10C	LW03-SD528 LW03-SD528-00-10C
Phylum: Porifera	300mm403, C3, C0173000m3077-C120C130000m407-403-700 300			The state of the s	
Class: Unspecified					
Order: Unspecified					The state of the s
Family: Unspecified		{ •			And the state of t
Porifera (LPIL)		-	14	14	-
Phylum: Cnidaria					
Class: Hydrozoa				Ì	
Order: Unspecified					
Family: Unspecified				1	
Hydrozoa (LPIL)		-	-	-	-
Class: Anthozoa					
Order: Actiniaria					
Family: Unspecified					
Actiniaria (LPIL)		-	-	532	-
Actiniaria sp. A		-	-	-	-
Order: Unspecified					
Family: Unspecified					
Anthozoa (LPIL)		-	-	14	-
Phylum: Nemertea					
Class: Unspecified					
Order: Unspecified					
Family: Unspecified					
Nemertea (LPIL)		-	-	-	14
Nemertea sp. A (LPIL)		-	-	-	-
Nemertea sp. B (LPIL)		-	-	-	-
Nemertea sp. C (LPIL)		-	-	-	-
Nemertea sp. D (LPIL)		-	-	-	-
Phylum: Annelida					
Class: Polychaeta					
Order: Aciculata					
Family: Dorvilleidae					
Dorvillea (Schistomeringos) rudo	lphi	-	-	14	-
Dorvilleidae (LPIL)		-	-	-	-
Family: Eunicidae					
Marphysa sanguinea		-	-	-	-
Family: Glyceridae					
Glycera americana		-	-	-	-
Glycera dibranchiata		-	-	-	-
Glycera sp.		-	-	-	-
Ophioglycera sp.		-	-	_	-
Family: Goniadidae		!			
Glycinde solitaria		-	-	-	-
Family: Hesionidae		1			
Gyptis crypta		- -	-	-	-
Hesionidae (LPIL)		-	-	-	-
Podarke obscura		<del>-</del>	=	43	-
Family: Nereididae					

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# Macroinvertebrate Results Data Per Square Meter (Unpooled)

Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

2010

xonomic assification	Station Replicate Collection Date	LW03-SD525 LW03-SD525-00-10C 09/02/10	LW03-SD526 LW03-SD526-00-10C 09/10/10	LW03-SD527 LW03-SD527-00-10C	LW03-SD528 LW03-SD528-00-1 09/09/10
Laeonereis culveri	40046-14.0000000-4277-000400000000000000000000000	on a responsibility of the contract of the con	Notaer states from the Northern California California (North California) and American (North California) and American (North California) and American (North California) and American (North Californ	Onderstand the Personal Control of the Control and Additional Additional Additional Control of the Control of t	y 500 Palatanazarrailun arramente persona personale e con entre o estado e acros
Neanthes succinea		- -	-	_	_
Nereididae (LPIL)		-	<u>-</u>	-	_
Platynereis dumerilii			_	_	_
Family: Oenonidae					
Drilonereis longa		<u>-</u>	_	_	_
Family: Onuphidae					<del></del>
Diopatra cuprea		_	_	_	
Family: Phyllodocidae					
Eteone sp.		<i>-</i>	_	_	
Eumida sanguinea		_	<u>_</u>	_	-
Phyllodoce mucosa			_	-	-
Phyllodocidae (LPIL)		_		-	-
Family: Polynoidae		- !	-	-	-
Lepidonotus sp.					
Family: Syllidae		-	<del>-</del>	-	-
Grubeosyllis clavata					
		-	-	•	-
Syllidae (LPIL)		-	-	-	-
Order: Canalipalpata					
Family: Ampharetidae		1 !			
Ampharetidae (LPIL)		-	-	-	-
Family: Chaetopteridae					
Spiochaetopterus costarum		-	-	14	29
Family: Cirratulidae					
Aphelochaeta sp.		-	-	-	-
Cirratulidae (LPIL)		-	-	-	-
Tharyx sp.		-	-	-	-
Family: Pectinariidae					
Pectinaria gouldii		<u> </u>	-	-	_
Pectinaria sp.		•	<del>-</del>	-	-
Family: Sabellidae					
Demonax microphthalmus		_	-	115	-
Sabellaria vulgaris		-	-	-	-
Sabellidae (LPIL)		-	-	29	_
Sabellinae (LPIL)			<del>-</del>	-	_
Family: Serpulidae					
Hydroides dianthus			_	_	_
Family: Serpulidae					
Hydroides diathus			_	-	_
Family: Serpulidae		f			_
Hydroides sp.		_	_	29	
Serpulidae (LPIL)			_		<del>-</del>
Family: Spionidae			-	-	-
Apoprionospio pygmaea		_			
Dipolydora cauleri		: :	•	-	-
Dipolydora socialis		:	-	-	-
Dipolydora socialis Marenzelleria viridis			-	-	-

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Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

			5		
Taxonomic	Station		LW03-SD526	LW03-SD527	LW03-SD528
Classification	Replicate Collection Date	LW03-SD525-00-10C	LW03-SD526-00-10C	LW03-SD527-00-10C	LW03-SD528-00-10C
Minuspio sp.		-	-	<u>-</u>	- 43
Paraprionospio pinnata		-	-	- 57	43
Polydora cornuta		-	-	5/	-
Pseudopolydora sp.		-	-	-	-
Scolelepis texana		-	-	-	-
Spio sp.		-	-	-	-
Spionidae (LPIL)		-	-	-	-
Streblospio benedicti		-	43	-	-
Family: Terebellidae		* The state of the			
Loimia medusa		. <b>-</b>	-	-	-
Loimia sp.		-	-	-	-
Pista cristata		-	-	-	-
Terebellidae (LPIL)		-	-	-	-
Order: Capitellida					
Family: Capitellidae			B. Proposition of the Control of the		
Capitella capitata complex Blake		-	-	129	-
Capitella jonesi		-	-	-	-
Capitella sp.		<u>-</u>	-	-	•
Capitellidae (LPIL)		-	-	-	-
Heteromastus filiformis		<u>-</u>	-	-	-
Mediomastus ambiseta		-	-	_	-
Mediomastus californiensis		-	-	-	-
Mediomastus sp.		_	-	-	-
Order: Orbiniida					
Family: Orbiniidae		1	na na na na na na na na na na na na na n		
Leitoscoloplos fragilis		-	-	-	-
Leitoscoloplos sp.		-	-	-	-
Orbiniidae (LPIL)		-	-	-	_
Scoloplos rubra		-	-	-	-
Order: Phyllodocida				# # # # # # # # # # # # # # # # # # #	
Family: Pilargidae					
Sigambra tentaculata		-	-	-	_
Order: Unspecified					
Family: Maldanidae		1			
Clymenella torquata		-	-	-	_
Class: Clitellata				į	
Order: Haplotaxida					
Family: Naididae					
Paranais frici		-	-	_	-
Family: Tubificoid Naididae					
Tubificoid Naididae imm. w/o hair	· setae (LPIL)		-	-	-
Tubificoides sp.	(LI 1L)	· -	_	-	_
Phylum: Arthropoda		1		\$ \$	
Class: Malacostraca					
Order: Amphipoda		1			
Family: Aoridae					
Aoridae (LPIL)		!	_	_	_
AUTIUAE (LFTL)		<del>-</del>	- -	-	-

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6821 SW Archer Road Gainesville, FL 32608 www.waterandair.com Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic Classification	Station Replicate Collection Date	LW03-SD525 LW03-SD525-00-10C 09/02/10	LW03-SD526 LW03-SD526-00-10C	LW03-SD527 LW03-SD527-00-10C	LW03-SD528 LW03-SD528-00-10C
Family: Corophiidae	ocinomina di anciona di uni si si si si si si si si si si si si si	<ul> <li>Application of the Control of the Cont</li></ul>	GETT OTT THE POTE TO THE SECRET SEPPORT FROM THE SAME AS A SECRETARY OF A SECRETARY OF THE		
Monocorophium acherusicum		-	-	-	-
Monocorophium insidiosum		-	-	-	-
Monocorophium sp.		-	-	-	-
Family: Liljeborgiidae					
Listriella clymenellae		-	-	-	-
Order: Cumacea					
Family: Bodotriidae					
Cyclaspis varians		-	-	-	-
Family: Leuconidae					
Leucon americanus		-	-	-	-
Family: Unspecified					
Cumacea (LPIL)		-	-	-	-
Order: Decapoda					
Family: Alpheidae					
Alpheus sp.		<u>-</u>	•	-	_
Family: Palaemonidae					
Palaemonetes sp.		-	<u>-</u>	_	
Family: Panopeidae					
Panopeidae (LPIL)		-	<u>-</u>	-	
Panopeus herbstii		-	-	-	-
Rhithropanopeus harrisii		-	-	-	-
Family: Pinnotheridae		1			
<i>Pinnixa</i> sp.		-	<u>-</u>	-	-
Family: Portunidae		1007			
Callinectes sp.			-	-	-
Portunidae (LPIL)		-	-	-	-
Family: Unspecified					
Decapoda (LPIL)		-	-	-	-
Decapoda (zoea)		-	<del>-</del>	-	-
Decapoda zoea (larva)		<u>-</u>	-	-	-
Order: Isopoda					
Family: Idoteidae					
Edotia triloba		-	-	-	-
Order: Leptostraca					
Family: Unspecified					
Leptostraca (LPIL)			-	-	-
Order: Mysida					
Family: Mysidae			***************************************		
Americamysis bigelowi		-	-	_	-
Americamysis sp.		_	_	•	-
Mysidae (LPIL)		-	-	-	-
Neomysis americana			-		-
Family: Unspecified					
Mysidacea (LPIL)			-	-	-
Order: Stomatopoda					
Family: Squillidae					

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Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

		LIMOS CDESE	LIMIOS CIDESC	LM(02 CD527	177/05 CD 550
Taxonomic	Station Replicate	LW03-SD525	LW03-SD526 LW03-SD526-00-10C	LW03-SD527	LW03-SD528
Classification	Collection Date	09/02/10	09/10/10	09/12/10	09/09/10
Squilla empusa		ti (160 milli venti kentrekiren miner tutur melikaturatan an miner tuturatan antara atau atau musukatan kentra 		да статить поброжения на посметального установали, таку мастану в состой до на постановали в состановали в сост —	
Class: Maxillopoda					
Order: Sessilia					
Family: Balanoidea					
Balanus improvisus	A Administration	-	-	-	-
Family: Balanomorpha					
Balanomorpha (LPIL)		-	-	<b>-</b>	-
Class: Entognatha	1				
Order: Collembola					
Family: Unspecified					
Collembola (LPIL)	ļ	-	-	-	-
Class: Unspecified					
Order: Unspecified					
Family: Unspecified					personal de la companya de la compan
Crustacea (LPIL)		-	-	-	-
Phylum: Mollusca					
Class: Gastropoda					
Order: Cephalaspidea					
Family: Cylichnidae					
Acteocina canaliculata		-	-	-	-
Acteocina sp.		-	-	-	-
Order: Heterostropha					
Family: Pyramidellidae					
Odostomia engonia		-	-	-	-
Order: Heterostropha					
Family: Pyramidellidae					
Turbonilla interrupta		-	*	-	-
Order: Neogastropoda					
Family: Columbellidae					-
Astyris lunata		-	-	-	-
Nassarius vibex		-	-	-	-
Family: Conidae					
Pyrgocythara plicosa		<u>-</u>	-	-	-
Order: Neotaenioglossa			and the state of t		
Family: Calyptraeidae			to the second		
Crepidula fornicata		-	-	14	-
Crepidula plana		-	-	-	-
Order: Neotaenioglossa		; !			
Family: Cerithiopsidae					
Cerithiopsis greenii		-	-	-	-
Order: Neotaenioglossa					
Family: Epitoniidae					
Epitonium rupicola		-	-	-	-
Order: Unspecified					
Family: Unspecified					
Gastropoda (LPIL)		-	•	-	-
Class: Bivalvia					

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#### **Macroinvertebrate Results Data Per Square Meter (Unpooled)**

Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

2010

Station	LW03-SD525	LW03-SD526	LW03-SD527	LW03-SD528
Collection Date	LW03-SD525-00-10C 09/02/10	LW03-SD526-00-10C 09/10/10	LW03-SD527-00-10C 09/12/10	LW03-SD528-00-10C
inninesseenin koolonii koolonii kasta kasta kasta kasta kasta kasta kasta kasta kasta kasta kasta kasta kasta k	er Tresser Amerikanska (r.) ner en landstrikke om den de kolaniska se oprodukter er de statiske er i novi statiske med er de statiske er i novi statiske med er de statiske er i novi statiske med er de statiske er i novi statiske er de statiske er i novi statis	DECONING PROPERTY AND AND AND AND AND AND AND AND AND AND		######################################
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			}	
	Replicate	Replicate LW03-SD525-00-10C	Replicate LW03-SD525-00-10C LW03-SD526-00-10C	Replicate LW03-SD525-00-10C LW03-SD526-00-10C LW03-SD527-00-10C

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Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic Classification	Station Replicate Collection Date	21100 00000 00 100		LW03-SD527 LW03-SD527-00-10C	LW03-SD528 LW03-SD528-00-10C
Ciassification	Collection Date	09/02/10	09/10/10	09/12/10	09/09/10
Phoronida (LPIL)		-	-	-	14
Phylum: Echinodermata		1			
Class: Ophiuroidea					
Order: Unspecified					
Family: Unspecified					
Ophiuroidea (LPIL)		<u>.</u>	_	-	-
Phylum: Chordata					
Class: Cephalochordata					
Order: Amphioxiformes					
Family: Branchiostomatidae	•				
Branchiostoma sp.		-	-	-	-
No Organisms Present		<b>√</b>	_	-	-
Total Organisms		0	57	1006	101
Total Taxa		N/A	2	12	4



#### water & air RESEARCH, INC.

6821 SW Archer Road Gainesville, FL 32608 www.waterandair.com

## Macroinvertebrate Results Data Per Square Meter (Unpooled)

Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

2010

Taxonomic	Station	LW03-SD529	LW03-SD530	LW03-SD533	LW03-SD534-01
Classification	Collection Date	LVV03-SD529-00-10C 09/09/10	LW03-SD530-00-10C	LW03-SD533-00-10C	LW03-SD534-01-100
Phylum: Porifera	er vikrakon listrioa esisako etr umendensikat <sub>roko</sub> eg		er kommensi zi zi zi 1900 imanini india zi zinnegoni nazazi zi ziwani kowazi kiliku ni 1900 inanini interna	VP0544-експланический компенсион по подавлений по по подавлений по подавлений по подавлений по по по по по по по по по по по по по	pidan dek vin essekkilokovi wonombik tri avville Pokielokilokilokojavet, ovejskilokoje tavitet stavit od op
Class: Unspecified					
Order: Unspecified					
Family: Unspecified					
Porifera (LPIL)		-	_	_	_
Phylum: Cnidaria					
Class: Hydrozoa					
Order: Unspecified					
Family: Unspecified			- A A A A A A A A A A A A A A A A A A A		
Hydrozoa (LPIL)		14	_	_	_
Class: Anthozoa					
Order: Actiniaria					
Family: Unspecified					
Actiniaria (LPIL)		101	_	_	
Actiniaria sp. A		14		_	_
Order: Unspecified				_	-
Family: Unspecified					
Anthozoa (LPIL)		· ! _	_		
Phylum: Nemertea				-	-
Class: Unspecified					
Order: Unspecified					
Family: Unspecified				<i>i</i>	
Nemertea (LPIL)		_			
Nemertea sp. A (LPIL)		_	-	-	-
Nemertea sp. B (LPIL)			_	-	-
Nemertea sp. C (LPIL)			-	-	-
Nemertea sp. D (LPIL)			_	-	-
Phylum: Annelida		<u>-</u>	-	-	-
Class: Polychaeta					
Order: Aciculata					
Family: Dorvilleidae		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			
Dorvillea (Schistomeringos) rudol	nhi				
Dorvilleidae (LPIL)	prii		-	-	-
Family: Eunicidae		<del>-</del>	-	1 <b>-</b>	-
Marphysa sanguinea					
Family: Glyceridae		- :	-	•	-
Glycera americana					
Glycera americana Glycera dibranchiata		- -	-	-	-
Glycera sp.		<u>-</u>	-	-	-
Ophioglycera sp.		. <del>.</del> !	-	-	-
		<u>-</u>	-	-	=
Family: Goniadidae Glycinde solitaria		43			
Family: Hesionidae		40	-	-	-
Gyptis crypta			-	: <del>-</del>	-
Hesionidae (LPIL)		. <del>-</del>	-	- 1	-
Podarke obscura		. <b>72</b>	-	-	-
Family: Nereididae				:	

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Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station	LW03-SD529	LW03-SD530	LW03-SD533	LW03-SD534-01
Classification	Replicate Collection Date		LW03-SD530-00-10C		
	Collection Date	09/09/10	09/02/10	09/01/10	09/01/10
Laeonereis culveri		-	-	-	-
Neanthes succinea		<del>-</del>	-	-	-
Nereididae (LPIL)		•	-	-	-
Platynereis dumerilii		-	-	-	-
Family: Oenonidae					
Drilonereis longa		_	-	-	-
Family: Onuphidae					
Diopatra cuprea		-	-	-	-
Family: Phyllodocidae					
Eteone sp.		-	-	-	-
Eumida sanguinea		-	-	-	-
Phyllodoce mucosa		-	-	-	-
Phyllodocidae (LPIL)		-		-	-
Family: Polynoidae					
Lepidonotus sp.		-	-	-	-
Family: Syllidae		; ; ; ; ;			
Grubeosyllis clavata		-	-	-	-
Syllidae (LPIL)		-	-	-	-
Order: Canalipalpata				-	
Family: Ampharetidae					
Ampharetidae (LPIL)		-	-	-	-
Family: Chaetopteridae					
Spiochaetopterus costarum		· -	-	-	•
Family: Cirratulidae					
Aphelochaeta sp.		-	-	-	-
Cirratulidae (LPIL)		57	-	-	-
Tharyx sp.		57	-	-	-
Family: Pectinariidae		} 1			
Pectinaria gouldii		43	-	-	-
Pectinaria sp.		-	-	<u>-</u>	-
Family: Sabellidae		ì		1 1	
Demonax microphthalmus		29	-	-	
Sabellaria vulgaris		<b>.</b>	-	-	-
Sabellidae (LPIL)		-	-	<u>.</u>	-
Sabellinae (LPIL)		-	-	-	-
Family: Serpulidae					To the state of th
Hydroides dianthus		-	-	-	-
Family: Serpulidae					
Hydroides diathus		-	-	-	-
Family: Serpulidae					Tanana da a sa
Hydroides sp.		-	-	-	-
Serpulidae (LPIL)		-	-	-	-
Family: Spionidae					
Apoprionospio pygmaea		<b>-</b>	-	-	-
Dipolydora cauleri		-	-	-	-
Dipolydora socialis		-	-	-	-
Marenzelleria viridis		-	-	-	-

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#### Macroinvertebrate Results Data Per Square Meter (Unpooled)

Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

LW03-SD529 LW03-SD530 LW03-SD533 LW03-SD534-01 **Taxonomic** Station Replicate LW03-SD529-00-10C LW03-SD530-00-10C LW03-SD533-00-10C LW03-SD534-01-10C Classification Collection Date 09/09/10 09/02/10 09/01/10 09/01/10 Minuspio sp. Paraprionospio pinnata 43 129 Polydora cornuta Pseudopolydora sp. Scolelepis texana Spio sp. Spionidae (LPIL) 43 57 Streblospio benedicti Family: Terebellidae Loimia medusa Loimia sp. Pista cristata 43 Terebellidae (LPIL) Order: Capitellida Family: Capitellidae Capitella capitata complex Blake 29 Capitella jonesi Capitella sp. Capitellidae (LPIL) 29 14 Heteromastus filiformis Mediomastus ambiseta Mediomastus californiensis Mediomastus sp. 129 Order: Orbiniida Family: Orbiniidae Leitoscoloplos fragilis Leitoscoloplos sp. 14 Orbiniidae (LPIL) 29 Scoloplos rubra Order: Phyllodocida Family: Pilargidae Sigambra tentaculata Order: Unspecified Family: Maldanidae Clymenella torquata 14 Class: Clitellata Order: Haplotaxida Family: Naididae Paranais frici Family: Tubificoid Naididae Tubificoid Naididae imm. w/o hair setae (LPIL) Tubificoides sp. Phylum: Arthropoda Class: Malacostraca Order: Amphipoda Family: Aoridae Aoridae (LPIL)

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Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station	LW03-SD529	LW03-SD530	LW03-SD533	LW03-SD534-01
Classification		LW03-SD529-00-10C		LW03-SD533-00-10C	
TWO TO A THE TAX TO A TO A TO A TO A TO A TO A TO A	OS SYNTROGRAMINES ACTORISMOS HON ESTINOCESSARRA PROGRAMMANIA	OS/OS/10	09/02/10	Approximation of the second se	
Family: Corophidae					
Monocorophium acherusicum		-	-	-	-
Monocorophium insidiosum		-	-	-	-
Monocorophium sp.		-	-	-	-
Family: Liljeborgiidae					
Listriella clymenellae		-	-	-	-
Order: Cumacea					
Family: Bodotriidae				***************************************	
Cyclaspis varians		• !	-	-	-
Family: Leuconidae					
Leucon americanus		-	-	-	-
Family: Unspecified		•			
Cumacea (LPIL)		-	-	-	-
Order: Decapoda					
Family: Alpheidae					
Alpheus sp.		<u>.</u>	-	•	-
Family: Palaemonidae					
Palaemonetes sp.		-	-	-	-
Family: Panopeidae				To Company	
Panopeidae (LPIL)		<u>-</u>	-	-	-
Panopeus herbstii		-	-	-	-
Rhithropanopeus harrisii		-	-	-	-
Family: Pinnotheridae					
Pinnixa sp.		-	-	-	•
Family: Portunidae					
Callinectes sp.		-	-	-	-
Portunidae (LPIL)		- -	-	_	-
Family: Unspecified					
Decapoda (LPIL)		14	-	-	-
Decapoda (zoea)		_	-	-	-
Decapoda zoea (larva)		-	-	-	-
Order: Isopoda		1			
Family: Idoteidae		1		Ì	
Edotia triloba		-	-	-	-
Order: Leptostraca					
Family: Unspecified					
Leptostraca (LPIL)		-	-	-	-
Order: Mysida		1			
Family: Mysidae					
Americamysis bigelowi		÷ ÷	-		-
Americamysis sp.		-	-	-	-
Mysidae (LPIL)		-	-	•	-
Neomysis americana		-	-	-	-
Family: Unspecified			BLUT CONTY		
Mysidacea (LPIL)		-	-	-	-
Order: Stomatopoda					
Family: Squillidae					
			1	•	r

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Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept 2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Odinosvino, 1 E 32000		
www.waterandair.com		

Taxonomic Classification	Station Replicate Collection Date	LW03-SD529 LW03-SD529-00-10C	LW03-SD530 LW03-SD530-00-10C	LW03-SD533 LW03-SD533-00-10C	LW03-SD534-01 LW03-SD534-01-10C
Squilla empusa	k i gi kangan ataun manan manan man manan atau anga anan	accidental de de de de de de de de de de de de de	plantil delektri direktila del etti kille illeri illeri etti oraanen periori etti kille kille illeri illeri ill —	antinin 1960 (1964) (1967), a line data kemilikan sekatabahan di bahan sekata datah sekata sekata sekata sekat 	ARTIN ANNIESTE VERSTERANSKI STEILANDERSKE ST
Class: Maxillopoda					
Order: Sessilia					
Family: Balanoidea					
Balanus improvisus		-	-	-	_
Family: Balanomorpha					
Balanomorpha (LPIL)		-	-	-	-
Class: Entognatha					TO SECULATE THE SECULATION OF THE SECULATION OF THE SECULATION OF THE SECULATION OF THE SECULATION OF THE SECULATION OF THE SECULATION OF THE SECULATION OF THE SECULATION OF THE SECULATION OF THE SECULATION OF THE SECULA
Order: Collembola					
Family: Unspecified					
Collembola (LPIL)		-	-	-	-
Class: Unspecified		; !			
Order: Unspecified					
Family: Unspecified					
Crustacea (LPIL)		-	-	-	-
Phylum: Mollusca					
Class: Gastropoda					
Order: Cephalaspidea					
Family: Cylichnidae					
Acteocina canaliculata		29	-	-	-
Acteocina sp.		-	-	-	-
Order: Heterostropha					
Family: Pyramidellidae					
Odostomia engonia		•	-	-	-
Order: Heterostropha					
Family: Pyramidellidae					
Turbonilla interrupta		-	<del>-</del>	-	-
Order: Neogastropoda					
Family: Columbellidae					
Astyris lunata		-	-	-	-
Nassarius vibex		-	-	-	-
Family: Conidae					
Pyrgocythara plicosa		-	••	-	-
Order: Neotaenioglossa					
Family: Calyptraeidae		70			
Crepidula fornicata		72	-	-	-
Crepidula plana		29	-	-	-
Order: Neotaenioglossa					
Family: Cerithiopsidae		2			
Cerithiopsis greenii		-	-	-	-
Order: Neotaenioglossa Family: Epitoniidae					
Epitonium rupicola					
Order: Unspecified		: <del>-</del>	-	-	-
Family: Unspecified					
Gastropoda (LPIL)					
Class: Bivalvia			-	-	-
Jugg. Divuivia					

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Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

2010

Taxonomic	Station	LW03-SD529	LW03-SD530	LW03-SD533	LW03-SD534-01
Classification	Replicate Collection Date	LW03-SD529-00-10C 09/09/10	LW03-SD530-00-10C 09/02/10	LW03-SD533-00-10C	LW03-SD534-01-10C 09/01/10
Order: Arcoida	eraeure also verscheiseur uit ver cook derchoosse schoolsfeeld is bone.	TO STATE THE STATE OF THE STATE	CONTRACTOR OF THE PROPERTY WAS A SHARE TO STORE OF THE PROPERTY OF THE PROPERT		produktivitanistorise, es estembles de schrije, i kard i visionis juristis statis at estituente poseesse.
Family: Arcidae					
Anadara transversa		-	-	-	-
Order: Mytiloida					
Family: Mytilidae					
Amygdalum papyrium	1	-	-	-	-
Order: Ostreoida			Market Control of the		
Family: Anomiidae		:			
Anomia simplex		14	-	-	-
Order: Ostreoida					
Family: Anomiidae					
Pododesmus rudis		-	-	-	-
Order: Ostreoida				§	
Family: Ostreidae					
Crassostrea virginica		-	-	-	-
Order: Pholadomyoida					
Family: Lyonsiidae					
Lyonsia hyalina		-	-	-	-
Order: Veneroida					
Family: Mactridae					
Mactridae (LPIL)		-	-	-	-
Mulinia lateralis		-	-	-	-
Mulinia lateralis		-	-	-	-
Family: Petricolidae					
Petricolaria pholadiformis		- -	-	-	-
Family: Solecurtidae		i i			
Tagelus plebeius		-	-	-	-
Tagelus sp.			-	-	-
Family: Tellinidae					
Macoma tenta		- -	-	-	-
Tellinidae (LPIL)		115	-	-	-
Family: Veneridae					
Gemma gemma		445	-	-	-
Order: Veneroida		1			
Family: Veneridae					
Mercenaria mercenaria		43	-		-
Order: Veneroida		f			
Family: Veneridae		1			
Pitar sp.		-	-	-	-
Veneridae (LPIL)		517	-	-	-
Order: Unspecified					
Family: Unspecified					İ
Bivalvia (LPIL)		72	-	14	-
Phylum: Phoronida		i V		1	1
Class: Unspecified					
Order: Unspecified					
Family: Unspecified				1	

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Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

2010

Taxonomic Classification	Station Replicate Collection Date	LW03-SD529 LW03-SD529-00-10C 09/09/10	LW03-SD530 LW03-SD530-00-10C 09/02/10	LW03-SD533 LW03-SD533-00-10C	LW03-SD534-01 LW03-SD534-01-10C
Phoronida (LPIL)	T 7000000000000000000000000000000000000	158	kiterilari kiterinal ja kataleke eta esta esta tilitati kiris sasangan kukusan asukusus kukusa indos sa **	29	PROTOT institutus pales e commentinum per de palesta con metabolic montre antecco estracción de actividad por
Phylum: Echinodermata					
Class: Ophiuroidea					
Order: Unspecified					
Family: Unspecified					
Ophiuroidea (LPIL)		-	-	-	_
Phylum: Chordata					
Class: Cephalochordata					
Order: Amphioxiformes					
Family: Branchiostomatidae					
Branchiostoma sp.		<u>-</u>	-	-	-
No Organisms Present		-	✓	-	✓
Total Organisms		2414	14	144	14
Total Taxa		30	N/A	4	N/A



Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station Replicate	LW03-SD535 LW03-SD535-00-10C	LW03-SD537	LW03-SD538	LW03-SD539
Classification	Collection Date	09/01/10	09/01/10	09/01/10	09/01/10
Phylum: Porifera			200 - 100 -		general film and on the mention of the film and attention and attended to the second and and the second and and the second and and the second and and the second and and the second and and the second and and the second and and the second and and the second and and and and and and and and and a
Class: Unspecified					
Order: Unspecified					
Family: Unspecified					
Porifera (LPIL)		14	-	-	-
Phylum: Cnidaria					
Class: Hydrozoa					
Order: Unspecified					
Family: Unspecified					
Hydrozoa (LPIL)		<del>-</del>	-	-	-
Class: Anthozoa					
Order: Actiniaria					
Family: Unspecified					
Actiniaria (LPIL)		-	-	-	-
Actiniaria sp. A		-	<del>-</del>	-	-
Order: Unspecified					
Family: Unspecified					
Anthozoa (LPIL)		-	-	-	-
Phylum: Nemertea					
Class: Unspecified					
Order: Unspecified					
Family: Unspecified					
Nemertea (LPIL)		29	-	-	-
Nemertea sp. A (LPIL)		_	-	-	-
Nemertea sp. B (LPIL)		-	-	-	-
Nemertea sp. C (LPIL)		-	-	-	-
Nemertea sp. D (LPIL)		-	-	-	-
Phylum: Annelida					
Class: Polychaeta					
Order: Aciculata					
Family: Dorvilleidae				No.	
Dorvillea (Schistomeringos) rude	olphi	14	-	-	•
Dorvilleidae (LPIL)		<u>-</u>	-	<u>-</u>	-
Family: Eunicidae					Bas V-1-1-1 of the state of the
Marphysa sanguinea			_	_	-
Family: Glyceridae		5 8 1			
Glycera americana		-	-	-	-
Glycera dibranchiata		i ;	-	<u>-</u>	-
Glycera sp.			-	_	-
Ophioglycera sp.		<u>-</u>	-	-	-
Family: Goniadidae					
Glycinde solitaria		273	_	_	_
Family: Hesionidae		•			-
Gyptis crypta		115	_	. <u>-</u>	_
Hesionidae (LPIL)			_	·	_
Podarke obscura		144	_	_	-
Family: Nereididae		) <del>1 1 1</del>	-	•	<del>-</del>

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#### Macroinvertebrate Results Data Per Square Meter (Unpooled)

Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station Replicate	LW03-SD535 LW03-SD535-00-10C	LW03-SD537 LW03-SD537-00-10C	LW03-SD538 LW03-SD538-00-10C	LW03-SD539 LW03-SD539-00-10C
Classification	Collection Date	09/01/10	09/01/10	09/01/10	09/01/10
Laeonereis culveri			COLUMNICATION CO		ONTO, DESCRIPTION OF THE PROPERTY AND ADDRESS OF THE PROPERTY OF THE PROPERTY AND ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY ADDRESS
Neanthes succinea		-	-	-	-
Nereididae (LPIL)		-	_	-	-
Platynereis dumerilii		-	-	-	-
Family: Oenonidae					
Drilonereis longa		_	-	-	-
Family: Onuphidae					
Diopatra cuprea		-	-		-
Family: Phyllodocidae					
Eteone sp.		-	-	-	-
Eumida sanguinea		; {	_	-	-
Phyllodoce mucosa		14	<u>-</u>	-	-
Phyllodocidae (LPIL)		14	-	-	-
Family: Polynoidae		i			
Lepidonotus sp.		-	_	-	-
Family: Syllidae					
Grubeosyllis clavata		-	-	-	_
Syllidae (LPIL)		-	-	-	-
Order: Canalipalpata					
Family: Ampharetidae					
Ampharetidae (LPIL)		-	<u>-</u>	-	-
Family: Chaetopteridae		i I			
Spiochaetopterus costarum			-	-	-
Family: Cirratulidae					
Aphelochaeta sp.		-	-	-	_
Cirratulidae (LPIL)		14	_	-	-
Tharyx sp.		14	_	-	-
Family: Pectinariidae		<u>.</u>			
Pectinaria gouldii		-	-	-	-
Pectinaria sp.		_	<u>-</u>	-	-
Family: Sabellidae					
Demonax microphthalmus		72	<u>-</u>	-	-
Sabellaria vulgaris		<u>-</u>	-	-	-
Sabellidae (LPIL)		-	-	-	-
Sabellinae (LPIL)		-	-	-	
Family: Serpulidae					
Hydroides dianthus		<u>-</u>	<u>-</u>	-	-
Family: Serpulidae					
Hydroides diathus		72	-	-	-
Family: Serpulidae					
Hydroides sp.		14	_	-	-
Serpulidae (LPIL)		_	-	-	-
Family: Spionidae		* 1			
Apoprionospio pygmaea		-	-	-	-
Dipolydora cauleri		. <u>.</u>	-	-	-
Dipolydora socialis		: -	-	-	-
Marenzelleria viridis			-	-	-

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Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

LW03-SD535 LW03-SD537 LW03-SD538 LW03-SD539 **Taxonomic** Station Replicate LW03-SD535-00-10C LW03-SD537-00-10C LW03-SD538-00-10C LW03-SD539-00-10C Classification Collection Date 09/01/10 09/01/10 09/01/10 09/01/10 Minuspio sp. Paraprionospio pinnata Polydora cornuta Pseudopolydora sp. Scolelepis texana Spio sp. Spionidae (LPIL) 14 14 Streblospio benedicti Family: Terebellidae 57 Loimia medusa Loimia sp. Pista cristata Terebellidae (LPIL) 14 Order: Capitellida Family: Capitellidae Capitella capitata complex Blake Capitella jonesi 14 Capitella sp. Capitellidae (LPIL) Heteromastus filiformis 43 Mediomastus ambiseta 14 Mediomastus californiensis 57 Mediomastus sp. Order: Orbiniida Family: Orbiniidae Leitoscoloplos fragilis Leitoscoloplos sp. Orbiniidae (LPIL) Scolopios rubra Order: Phyllodocida Family: Pilargidae Sigambra tentaculata Order: Unspecified Family: Maldanidae Clymenella torquata Class: Clitellata Order: Haplotaxida Family: Naididae Paranais frici Family: Tubificoid Naididae Tubificoid Naididae imm. w/o hair setae (LPIL) Tubificoides sp. Phylum: Arthropoda Class: Malacostraca Order: Amphipoda Family: Aoridae Aoridae (LPIL)

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Sample Method: Petite Ponar (x3)



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## Macroinvertebrate Results Data Per Square Meter (Unpooled)

Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

Clean III Report Date: 11/08/2010 Clean Aug-Sept

2010

「axonomic	Station		LW03-SD537	LW03-SD538	LW03-SD539
Classification	Collection Date	LW03-SD535-00-10C	09/01/10	LW03-SD538-00-10C	LW03-SD539-00-10
Family: Corophiidae	openalastis minimismo produces anima albumo necessario assessario escopena		Processorial interesting of the state of the State of the		
Monocorophium acherusicum		-	-	_	_
Monocorophium insidiosum		-	-	_	_
Monocorophium sp.		-	_	-	-
Family: Liljeborgiidae					
Listriella clymenellae		-	-	_	_
Order: Cumacea					
Family: Bodotriidae					
Cyclaspis varians		-	_		_
Family: Leuconidae					
Leucon americanus			_	_	
Family: Unspecified				_	_
Cumacea (LPIL)		_	_		
Order: Decapoda			_	*	-
Family: Alpheidae					
Alpheus sp.		_			
Family: Palaemonidae		_	-	-	-
Palaemonetes sp.			-	-	-
Family: Panopeidae					
Panopeidae (LPIL)		• }	-	-	-
Panopeus herbstii		-	•	-	-
Rhithropanopeus harrisii		14	-	-	<b>-</b>
Family: Pinnotheridae					
Pinnixa sp.			-	-	-
Family: Portunidae					*
Callinectes sp.		-	-	-	-
Portunidae (LPIL)		-	-	-	-
Family: Unspecified					
Decapoda (LPIL)		-	-	-	-
Decapoda (zoea)		•	-	-	-
Decapoda zoea (larva)		-	-	-	-
Order: Isopoda					
Family: Idoteidae					
Edotia triloba		- -	-	-	-
Order: Leptostraca					
Family: Unspecified					
Leptostraca (LPIL)		_	-	-	-
Order: Mysida					
Family: Mysidae					
Americamysis bigelowi		_	-	_	*
Americamysis sp.		=	-	_	_
Mysidae (LPIL)		-	-	-	_
Neomysis americana		_	-	_	_
Family: Unspecified				and the state of t	
Mysidacea (LPIL)		. <b>-</b>		' <u>-</u>	_
Order: Stomatopoda				1	-
Family: Squillidae		:		In the second se	
ranniy. Squillidae		* 1		· ·	

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Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic Classification	Station Replicate Collection Date	LW03-SD535 LW03-SD535-00-10C	LW03-SD537 LW03-SD537-00-10C	LW03-SD538 LW03-SD538-00-10C	LW03-SD539 LW03-SD539-00-10C
Squilla empusa	DANGTERMAND OF TRANSCRIPTION DANGED ON MICHAEL DANGES	Rightliner er i del Polemere i num en consiste e consiste e consiste consis			is consistent to the constitution of the const
Class: Maxillopoda		1			
Order: Sessilia					
Family: Balanoidea					
Balanus improvisus		-	-	-	-
Family: Balanomorpha			No.		ng-diploid
Balanomorpha (LPIL)		-	-	-	-
Class: Entognatha					- A A A A A A A A A A A A A A A A A A A
Order: Collembola					The second secon
Family: Unspecified					
Collembola (LPIL)		-	-	-	m.
Class: Unspecified					- Andrews
Order: Unspecified			And the second s	90	II LA MILANDA
Family: Unspecified		1		1	To the second se
Crustacea (LPIL)		-	-	-	-
Phylum: Mollusca					and places and
Class: Gastropoda					
Order: Cephalaspidea					
Family: Cylichnidae					
Acteocina canaliculata		14	-	-	-
Acteocina sp.		-	-	-	-
Order: Heterostropha				-	
Family: Pyramidellidae				1	
Odostomia engonia		•	-	-	-
Order: Heterostropha					* · · · · · · · · · · · · · · · · · · ·
Family: Pyramidellidae  Turbonilla interrupta					
Order: Neogastropoda		-	_	-	-
Family: Columbellidae					
Astyris lunata		_	_	_	
Nassarius vibex			_	_	_
Family: Conidae					
Pyrgocythara plicosa		_	_	-	_
Order: Neotaenioglossa					
Family: Calyptraeidae					
Crepidula fornicata		57	_	_	-
Crepidula plana			-	-	_
Order: Neotaenioglossa					
Family: Cerithiopsidae					
Cerithiopsis greenii		· •	_	-	_
Order: Neotaenioglossa					of the company
Family: Epitoniidae					
Epitonium rupicola		-	-	-	-
Order: Unspecified					
Family: Unspecified				* ·	A STATE OF THE STA
Gastropoda (LPIL)		<u>-</u>	-	-	-
Class: Bivalvia					7

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Sample Method: Petite Ponar (x3)



#### **Macroinvertebrate Results Data Per Square Meter (Unpooled)**

Project: Navy Clean III 6821 SW Archer Road Sample Group: Navy Clean Aug-Sept Gainesville, FL 32608 2010 www.waterandair.com

Report Date: 11/08/2010

Prepared For: CH2M HILL

Taxonomic Classification	Station Replicate Collection Date	LW03-SD535 LW03-SD535-00-10C	LW03-SD537 LW03-SD537-00-10C	LW03-SD538 LW03-SD538-00-10C	LW03-SD539 LW03-SD539-00-10C
Order: Arcoida	efektőkezülősér erészekkejkirzadásábarákki til kölött meknejér-kölötképés, (syag)	(B) 606-61. a.C.(120-94-04-201-980 ftm (C) consumation and visitation decision to the femological and security	No. 20 per seguir seguir seguir extension annum en participa pagamente transportation con concession en contra		**************************************
Family: Arcidae					
Anadara transversa		14	-	-	-
Order: Mytiloida			WARRANGE AND A STATE OF THE STA		ALAMERICA
Family: Mytilidae					And district the same of the s
Amygdalum papyrium		<del>-</del>	-	-	-
Order: Ostreoida				1	
Family: Anomiidae		1 1 1			
Anomia simplex		-	-	-	-
Order: Ostreoida					7.4.4
Family: Anomiidae					
Pododesmus rudis		-	-	-	-
Order: Ostreoida		i i			And the second of
Family: Ostreidae					
Crassostrea virginica		<u>-</u>	-	<u>-</u>	-
Order: Pholadomyoida				) 	
Family: Lyonsiidae					
Lyonsia hyalina		- ! !	-	<u>-</u>	-
Order: Veneroida		i i	l i		
Family: Mactridae					a. A. C. C. C. C. C. C. C. C. C. C. C. C. C.
Mactridae (LPIL)		-	-	-	-
Mulinia lateralis		43	-	<del>-</del>	-
Mulinia lateralis		· _	-	-	-
Family: Petricolidae					
Petricolaria pholadiformis		-	-	-	-
Family: Solecurtidae					
Tagelus plebeius			-	-	-
Tagelus sp.		14	-	<del>-</del>	-
Family: Tellinidae					Control of the Contro
Macoma tenta		<del>-</del>	-	-	-
Tellinidae (LPIL)		-	-	- W	-
Family: Veneridae					
Gemma gemma		43	-	-	-
Order: Veneroida					
Family: Veneridae					
Mercenaria mercenaria		29	-	-	-
Order: Veneroida		i			
Family: Veneridae					THE PARTY OF THE P
Pitar sp.		-	-	-	-
Veneridae (LPIL)		172	-	<del>-</del>	-
Order: Unspecified					AAAA
Family: Unspecified Bivalvia (LPIL)					
Phylum: Phoronida		<u>-</u>	-	•	-
Class: Unspecified				1	Parallel
Order: Unspecified					
Family: Unspecified					
rainity. Onspecified			:		

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Sample Method: Petite Ponar (x3)



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#### Macroinvertebrate Results Data Per Square Meter (Unpooled)

Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

Clean III Report Date: 11/08/2010
Clean Aug-Sept

2010

Taxonomic Classification	Station Replicate Collection Date	LW03-SD535 LW03-SD535-00-10C	LW03-SD537 LW03-SD537-00-10C	LW03-SD538 LW03-SD538-00-10C	LW03-SD539 LW03-SD539-00-10C
Phoronida (LPIL)		158	gazalandarian keritak ertikak dan salah dia antanggang dalam pendilah keritarah dan dia dia dia dia dia dia dia 	\$ 0000000 0000000000000000000000000000	ganz zalezają z riskilando trata otronic da kontrata kied kalitika Melika Melika Melika Melika Melika Melika M —
Phylum: Echinodermata					
Class: Ophiuroidea					
Order: Unspecified					
Family: Unspecified					
Ophiuroidea (LPIL)		-	-	-	-
Phylum: Chordata					Andrew Andrews
Class: Cephalochordata					
Order: Amphioxiformes				i.	
Family: Branchiostomatidae	•			· or County of C	
Branchiostoma sp.		_	-	-	-
No Organisms Present		-	-	✓	✓
Total Organisms		1595	14	14	14
Total Taxa		31	1	N/A	N/A



## Macroinvertebrate Results Data Per Square Meter (Unpooled)

Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station	LW03-SD540	LW03-SD541	LW03-SD543	LW03-SD544
Classification	Replicate Collection Date	LW03-SD540-00-10C		LW03-SD543-00-10C	LW03-SD544-00-10C
	Collection Date	09/01/10	09/07/10	09/01/10	09/01/10
Phylum: Porifera					
Class: Unspecified					
Order: Unspecified					
Family: Unspecified					
Porifera (LPIL)		-	-	-	-
Phylum: Cnidaria					
Class: Hydrozoa					
Order: Unspecified					
Family: Unspecified					
Hydrozoa (LPIL)		-	-	-	-
Class: Anthozoa					DEPARTMENT OF A STATE
Order: Actiniaria					egyptigeness of the control of the c
Family: Unspecified					
Actiniaria (LPIL)		-		-	-
Actiniaria sp. A		-	-	-	-
Order: Unspecified			A Profit of the Control of the Contr		
Family: Unspecified					Average of Tangan
Anthozoa (LPIL)		-	-	-	-
Phylum: Nemertea			C		
Class: Unspecified			***************************************		
Order: Unspecified					
Family: Unspecified					
Nemertea (LPIL)		-	-	-	-
Nemertea sp. A (LPIL)		-	_	-	-
Nemertea sp. B (LPIL)		-	-	-	-
Nemertea sp. C (LPIL)		: : -	-	-	-
Nemertea sp. D (LPIL)		-	-	-	-
Phylum: Annelida					
Class: Polychaeta			T. Carlotte		
Order: Aciculata					
Family: Dorvilleidae					
Dorvillea (Schistomeringos) rud	dolphi	· :	-	-	-
Dorvilleidae (LPIL)		<del>-</del>	-	<u>-</u>	-
Family: Eunicidae					
Marphysa sanguinea		_	-	-	-
Family: Glyceridae		<b>)</b>			
Glycera americana		-	-	<u>-</u>	-
Glycera dibranchiata		· -	-	-	-
Glycera sp.		-	-	<u>-</u>	-
Ophioglycera sp.		· ·	-	<del>-</del>	-
Family: Goniadidae					
Glycinde solitaria		-	-	<u>-</u>	-
Family: Hesionidae				† 	
Gyptis crypta			-	<u>-</u>	-
Hesionidae (LPIL)		· -	-	. <u>-</u>	-
Podarke obscura		-	-	-	-
Family: Nereididae				; 	

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## Macroinvertebrate Results Data Per Square Meter (Unpooled)

Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

xonomic assification	Station Replicate Collection Date	LW03-SD540 LW03-SD540-00-10C	LW03-SD541 LW03-SD541-00-10C	LW03-SD543 LW03-SD543-00-10C 09/01/10	LW03-SD544 LW03-SD544-00-1
Laeonereis culveri	ak (o kan ka o ka bahka adilan sa madan da manangan nagan kapara mbanangan sa da kapan sa kaban sa kapan sa ka	e bet de la de la desta de la desta de la desta de la desta de la desta de la desta de la desta de la desta de la dela dela dela dela dela dela de			
Neanthes succinea		_		-	-
Nereididae (LPIL)			-	-	-
Platynereis dumerilii		-	=	-	<del>-</del>
		-	-	-	-
Family: Oenonidae  Drilonereis longa					
		-	-	-	-
Family: Onuphidae					
Diopatra cuprea		-	•	-	•
Family: Phyllodocidae		1			
Eteone sp.		-	-	-	-
Eumida sanguinea		-	-	-	-
Phyllodoce mucosa		-	-	-	-
Phyllodocidae (LPIL)		-	-	-	-
Family: Polynoidae					
Lepidonotus sp.		-	-	-	-
Family: Syllidae					
Grubeosyllis clavata		-	-	-	-
Syllidae (LPIL)		-	-	-	-
Order: Canalipalpata					
Family: Ampharetidae					
Ampharetidae (LPIL)		-	-	-	-
Family: Chaetopteridae					
Spiochaetopterus costarum		<u>-</u>	-	-	-
Family: Cirratulidae					
Aphelochaeta sp.		· -	-	-	-
Cirratulidae (LPIL)		-	<del>-</del>	-	-
Tharyx sp.		-	29	-	-
Family: Pectinariidae					
Pectinaria gouldii		<u>-</u>	-	_	_
Pectinaria sp.			-	_	-
Family: Sabellidae					
Demonax microphthalmus		_	14	-	_
Sabellaria vulgaris		_	<u>-</u>	-	_
Sabellidae (LPIL)		_	_	_	_
Sabellinae (LPIL)		!	-	-	_
Family: Serpulidae					
Hydroides dianthus		_	_	_	_
Family: Serpulidae					_
Hydroides diathus		_	_	_	_
Family: Serpulidae		! ! !		-	-
Hydroides sp.		_	_	_	
Serpulidae (LPIL)		_	_	-	-
Family: Spionidae		-	-	-	-
Apoprionospio pygmaea		_	_		
		-	_	-	-
Dipolydora cauleri		- :	-	-	-
Dipolydora socialis		-	•	-	-
Marenzelleria viridis		-	-	-	-

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Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept 2010 Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

6821 SW Archer Road Gainesville, FL 32608 www.waterandair.com

Taxonomic Classification co	Station Replicate ollection Date	LW03-SD540 LW03-SD540-00-10C	LW03-SD541 LW03-SD541-00-10C	LW03-SD543 LW03-SD543-00-10C	LW03-SD544 LW03-SD544-00-100
Minuspio sp.	VIII TANKA MADANASI TANKA TANKA MADA			pitaliin täälään 1222–12 n on minet tiiti tiimista kaitettiin taleettiin tale	99999 w jawa (Alikata kalaka kalaka kalaka kata kata kata
Paraprionospio pinnata		-	14	-	<u>-</u>
Polydora cornuta		-	-	-	-
Pseudopolydora sp.		-	-	-	-
Scolelepis texana		_	_	-	-
Spio sp.		-	-		-
Spionidae (LPIL)		-	-	-	-
Streblospio benedicti		_	-		<del>-</del>
Family: Terebellidae					
Loimia medusa		-		-	-
Loimia sp.		-	_	-	_
Pista cristata				-	_
Terebellidae (LPIL)		_	-	-	_
Order: Capitellida					
Family: Capitellidae					
Capitella capitata complex Blake		-	-	<u>-</u>	-
Capitella jonesi		-	_	-	_
Capitella sp.		-	_		-
Capitellidae (LPIL)		•	-	-	-
Heteromastus filiformis		_	-	-	<del>-</del>
Mediomastus ambiseta		-	-	- -	-
Mediomastus californiensis		<u>-</u>	_	-	-
Mediomastus sp.			_	_	-
Order: Orbiniida					
Family: Orbiniidae					
Leitoscoloplos fragilis		-	-	-	-
Leitoscoloplos sp.			-	_	-
Orbiniidae (LPIL)		_	_	· -	_
Scolopios rubra		_	_	-	-
Order: Phyllodocida					
Family: Pilargidae					
Sigambra tentaculata		<u> </u>	_	-	-
Order: Unspecified					
Family: Maldanidae					
Clymenella torquata		-	-		_
Class: Clitellata				1	
Order: Haplotaxida				1	
Family: Naididae					
Paranais frici		-	-	· •	_
Family: Tubificoid Naididae					
Tubificoid Naididae imm. w/o hair se	tae (LPIL)	_	-	-	_
Tubificoides sp.	(=- ·=-)	: -	_		-
Phylum: Arthropoda		į		1	
Class: Malacostraca					
Order: Amphipoda					
Family: Aoridae					
Aoridae (LPIL)		. •	-	_	_
· · · · · · · · · · · · · · · · · · ·			į		

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Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic Classification	Station Replicate Collection Date	LW03-SD540 LW03-SD540-00-10C	LW03-SD541 LW03-SD541-00-10C	LW03-SD543 LW03-SD543-00-10C	LW03-SD544 LW03-SD544-00-10C
Family: Corophiidae	n-ii-u onmecamus optimas interparaminoolistkomus iskshiimi	AND AND THE PROPERTY OF THE PR		dan middiglikk professor de ferke med demonstrate mid med kan man and man ken mem mengam get oppgemente	
Monocorophium acherusicum		_	-	<u>-</u>	_
Monocorophium insidiosum		-	_	_	_
Monocorophium sp.		-	_	_	_
Family: Liljeborgiidae					
Listriella clymenellae		-	-	_	_
Order: Cumacea					
Family: Bodotriidae					
Cyclaspis varians			_	<u>.</u>	_
Family: Leuconidae					
Leucon americanus		-	_	_	_
Family: Unspecified					
Cumacea (LPIL)		•	-	-	-
Order: Decapoda			A		
Family: Alpheidae					
Alpheus sp.		-	_	-	_
Family: Palaemonidae					
Palaemonetes sp.		-	-	-	_
Family: Panopeidae					
Panopeidae (LPIL)		-	-	_	_
Panopeus herbstii		-	_	-	_
Rhithropanopeus harrisii		_	-	-	-
Family: Pinnotheridae					
Pinnixa sp.		-	-	-	-
Family: Portunidae					
Callinectes sp.		_	-	-	-
Portunidae (LPIL)		-	-	-	-
Family: Unspecified					
Decapoda (LPIL)		-	-	-	-
Decapoda (zoea)		-		<u>-</u>	-
Decapoda zoea (larva)		-	-	-	-
Order: Isopoda					
Family: Idoteidae		!			
Edotia triloba		-	-	, -	-
Order: Leptostraca					
Family: Unspecified					
Leptostraca (LPIL)		-	-	-	-
Order: Mysida					
Family: Mysidae					
Americamysis bigelowi		-	-	-	-
Americamysis sp.		-	-	<del>-</del>	-
Mysidae (LPIL)		-		-	-
Neomysis americana		-	-	! <u>-</u>	-
Family: Unspecified					
Mysidacea (LPIL)			-	-	-
Order: Stomatopoda					
Family: Squillidae		I control of the cont	1		

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#### **Macroinvertebrate Results** Data Per Square Meter (Unpooled)

Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

2010

Taxonomic Classification	Station Replicate Collection Date		LW03-SD541 LW03-SD541-00-10C		
	Collection Date	09/01/10	09/07/10	09/01/10	09/01/10
Squilla empusa	1 0	•	-	-	-
Class: Maxillopoda					
Order: Sessilia					
Family: Balanoidea	1				
Balanus improvisus	i	-	-	-	-
Family: Balanomorpha					
Balanomorpha (LPIL)		-	-	-	-
Class: Entognatha	,				
Order: Collembola					
Family: Unspecified					
Collembola (LPIL)		-	-	-	-
Class: Unspecified					
Order: Unspecified					
Family: Unspecified					
Crustacea (LPIL)		-	-	-	-
Phylum: Mollusca					
Class: Gastropoda					
Order: Cephalaspidea					
Family: Cylichnidae					
Acteocina canaliculata	1	-	-	-	_
Acteocina sp.		-	-	-	-
Order: Heterostropha					
Family: Pyramidellidae					
Odostomia engonia		-	-	-	-
Order: Heterostropha					
Family: Pyramidellidae					
Turbonilla interrupta		-		-	-
Order: Neogastropoda					
Family: Columbellidae					
Astyris lunata		-	-	-	-
Nassarius vibex		-	-	-	-
Family: Conidae					
Pyrgocythara plicosa		<b>-</b>	-	-	-
Order: Neotaenioglossa					
Family: Calyptraeidae					
Crepidula fornicata		-	14	-	-
Crepidula plana	1	-	-	-	-
Order: Neotaenioglossa			Exemples to the second	:	
Family: Cerithiopsidae					
Cerithiopsis greenii	į	-	-	-	-
Order: Neotaenioglossa			The American		
Family: Epitoniidae					
Epitonium rupicola		-	-	-	-
Order: Unspecified					
Family: Unspecified			•		
Gastropoda (LPIL)		-	-	· -	-
Class: Bivalvia	;				

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Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

	i				
Taxonomic	Station	LW03-SD540	LW03-SD541	LW03-SD543	LW03-SD544
Classification	Collection Date	09/01/10	LW03-SD541-00-10C	09/01/10	LW03-SD544-00-10C 09/01/10
Order: Arcoida					
Family: Arcidae					
Anadara transversa		-	-	-	-
Order: Mytiloida					
Family: Mytilidae					
Amygdalum papyrium		-	-	-	-
Order: Ostreoida					
Family: Anomiidae					TEA A CANADA
Anomia simplex		-	14	-	-
Order: Ostreoida					The state of the s
Family: Anomiidae		i I			
Pododesmus rudis		-	-	-	-
Order: Ostreoida					
Family: Ostreidae					
Crassostrea virginica		-	-	-	-
Order: Pholadomyoida					
Family: Lyonsiidae			Scotlands or		
Lyonsia hyalina		-	-	-	-
Order: Veneroida					
Family: Mactridae					
Mactridae (LPIL)		-	-	-	-
Mulinia lateralis		-	-	-	-
Mulinia lateralis		i		-	-
Family: Petricolidae					
Petricolaria pholadiformis		-	-	-	-
Family: Solecurtidae					
Tagelus plebeius		-	-	-	-
Tagelus sp.		-	-		-
Family: Tellinidae					
Macoma tenta		-	-	•	-
Tellinidae (LPIL)		-	-	_	-
Family: Veneridae					
Gemma gemma		-	-	-	-
Order: Veneroida					
Family: Veneridae				1	
Mercenaria mercenaria		-	14	-	-
Order: Veneroida					
Family: Veneridae				:	
Pitar sp.		-	-	-	-
Veneridae (LPIL)		· -	-	<u>.</u>	•
Order: Unspecified				3	
Family: Unspecified		1		į	
Bivalvia (LPIL)		<b>=</b>	-	<del>-</del>	-
Phylum: Phoronida				!	
Class: Unspecified					
Order: Unspecified		ŧ		· 1	
Family: Unspecified			1		}

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Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

2010
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Taxonomic Classification	Station Replicate Collection Date	LW03-SD540 LW03-SD540-00-10C	LW03-SD541 LW03-SD541-00-10C	LW03-SD543 LW03-SD543-00-10C	LW03-SD544 LW03-SD544-00-10C
Phoronida (LPIL)	es en la constituir em character à communication and constituir en constituir en constituir en constituir en c		29	09/01/10 	COS/O 1/10
Phylum: Echinodermata			23	_	-
Class: Ophiuroidea					
Order: Unspecified					
Family: Unspecified					
Ophiuroidea (LPIL)		_	-	-	-
Phylum: Chordata					
Class: Cephalochordata					
Order: Amphioxiformes					
Family: Branchiostomatidae	<del>)</del>	i i			
Branchiostoma sp.		-	-	-	-
No Organisms Present		✓	•	<b>√</b>	✓
Total Organisms		14	129	14	14
Total Taxa		N/A	7	N/A	N/A



Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Classification  Phylum: Porifera  Class: Unspecified  Order: Unspecified  Family: Unspecified  Porifera (LPIL)  Phylum: Cnidaria  Class: Hydrozoa  Order: Unspecified  Family: Unspecified  Hydrozoa (LPIL)  Class: Anthozoa  Order: Actiniaria  Family: Unspecified  Actiniaria (LPIL)  Actiniaria sp. A	a Primagonia de Applica e en especia de Applica e en especia de Applica e en especia de Applica e en especia d	09/01/10	09/01/10 Account amount in a crisical access	09/07/10	09/09/10
Class: Unspecified Order: Unspecified Family: Unspecified Porifera (LPIL) Phylum: Cnidaria Class: Hydrozoa Order: Unspecified Family: Unspecified Hydrozoa (LPIL) Class: Anthozoa Order: Actiniaria Family: Unspecified Actiniaria (LPIL) Actiniaria sp. A		-	· <u>-</u>		
Order: Unspecified Family: Unspecified Porifera (LPIL) Phylum: Cnidaria Class: Hydrozoa Order: Unspecified Family: Unspecified Hydrozoa (LPIL) Class: Anthozoa Order: Actiniaria Family: Unspecified Actiniaria (LPIL) Actiniaria sp. A		-	<u>-</u>		
Family: Unspecified Porifera (LPIL) Phylum: Cnidaria Class: Hydrozoa Order: Unspecified Family: Unspecified Hydrozoa (LPIL) Class: Anthozoa Order: Actiniaria Family: Unspecified Actiniaria (LPIL) Actiniaria sp. A		-	-		
Porifera (LPIL) Phylum: Cnidaria Class: Hydrozoa Order: Unspecified Family: Unspecified Hydrozoa (LPIL) Class: Anthozoa Order: Actiniaria Family: Unspecified Actiniaria (LPIL) Actiniaria sp. A		-	-		
Phylum: Cnidaria Class: Hydrozoa Order: Unspecified Family: Unspecified Hydrozoa (LPIL) Class: Anthozoa Order: Actiniaria Family: Unspecified Actiniaria (LPIL) Actiniaria sp. A				-	14
Class: Hydrozoa Order: Unspecified Family: Unspecified Hydrozoa (LPIL) Class: Anthozoa Order: Actiniaria Family: Unspecified Actiniaria (LPIL) Actiniaria sp. A					
Order: Unspecified Family: Unspecified Hydrozoa (LPIL) Class: Anthozoa Order: Actiniaria Family: Unspecified Actiniaria (LPIL) Actiniaria sp. A					
Family: Unspecified Hydrozoa (LPIL) Class: Anthozoa Order: Actiniaria Family: Unspecified Actiniaria (LPIL) Actiniaria sp. A					
Hydrozoa (LPIL) Class: Anthozoa Order: Actiniaria Family: Unspecified Actiniaria (LPIL) Actiniaria sp. A					
Class: Anthozoa Order: Actiniaria Family: Unspecified Actiniaria (LPIL) Actiniaria sp. A			_	_	-
Order: Actiniaria Family: Unspecified Actiniaria (LPIL) Actiniaria sp. A		1			
Family: Unspecified Actiniaria (LPIL) Actiniaria sp. A					
Actiniaria (LPIL) Actiniaria sp. A					
Actiniaria sp. A		_	-	_	_
		_	<u>.</u>	_	_
Order: Unspecified					
Family: Unspecified					
Anthozoa (LPIL)		_	_	_	_
Phylum: Nemertea					
Class: Unspecified					
Order: Unspecified					
Family: Unspecified					
Nemertea (LPIL)		_	_	_	_
Nemertea (LPIL)		_	_	_	_
Nemertea sp. B (LPIL)		_	_	_	_
Nemertea sp. C (LPIL)		_		_	_
Nemertea sp. D (LPIL)		_	_	_	_
Phylum: Annelida					
Class: Polychaeta					
Order: Aciculata					
Family: Dorvilleidae				1	
Dorvillea (Schistomeringos) rudolphi		_	_	_	_
Dorvilleidae (LPIL)					
Family: Eunicidae		-	-	-	-
Marphysa sanguinea		_	_	_	-
Family: Glyceridae		The state of the s			Total Control of Contr
Glycera americana		-	_	_	
Glycera dibranchiata		-	-	_	-
1		-	-		-
Glycera sp. Ophioglycera sp.		_	_	i _	
Family: Goniadidae					
Glycinde solitaria		-	_	29	-
Family: Hesionidae					
Gyptis crypta		_	_	_	-
Hesionidae (LPIL)			_	_	_
Podarke obscura		· •	_	_	-
Family: Nereididae			Ten tributes non-		
ranny. Nereididae					

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Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept 2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station Replicate	LW03-SD545	LW03-SD546	LW03-SD547 LW03-SD547-00-10C	LW03-SD548
Classification	Collection Date	09/01/10	09/01/10	09/07/10	09/09/10
Laeonereis culveri	CONTENTION OF THE PARTY OF THE	e til minest til set til se en en til senere i se et ståt til til til til til til til til til ti	от немога и до надажно до пост не што съобу по темпера из темпера и съ за выполнения и по на на наприя и сугур —		4986 essentiale estado estado de estado de estado en la consection de electrica de electronist
Neanthes succinea		-	-	-	-
Nereididae (LPIL)		-	-	-	-
Platynereis dumerilii		-	-	-	_
Family: Oenonidae					
Drilonereis longa		-	-	<u>-</u>	-
Family: Onuphidae					
Diopatra cuprea		-		-	_
Family: Phyllodocidae					
Eteone sp.		-	-	-	-
Eumida sanguinea		-	_	-	-
Phyllodoce mucosa		-	-	-	-
Phyllodocidae (LPIL)		-	-	-	_
Family: Polynoidae					
Lepidonotus sp.		-	-	_	-
Family: Syllidae				Í	
Grubeosyllis clavata		-	-	-	-
Syllidae (LPIL)		<u>-</u>	-	-	-
Order: Canalipalpata					
Family: Ampharetidae					
Ampharetidae (LPIL)		-	-		-
Family: Chaetopteridae					
Spiochaetopterus costarum		<u>.</u>	-	-	_
Family: Cirratulidae					
Aphelochaeta sp.		-	-	-	-
Cirratulidae (LPIL)		-	-	14	-
Tharyx sp.			-	-	-
Family: Pectinariidae					
Pectinaria gouldii		-	-	-	-
Pectinaria sp.		-	-	-	-
Family: Sabellidae					
Demonax microphthalmus		-	-	-	-
Sabellaria vulgaris		-	-	-	-
Sabellidae (LPIL)		-	-	-	-
Sabellinae (LPIL)		-	-	<u>-</u>	- (
Family: Serpulidae					
Hydroides dianthus		-	-	-	-
Family: Serpulidae					
Hydroides diathus		-	-	-	-
Family: Serpulidae					
Hydroides sp.		-	-	-	-
Serpulidae (LPIL)		-	-	-	-
Family: Spionidae					
Apoprionospio pygmaea		_	-		=
Dipolydora cauleri		-	-	-	-
Dipolydora socialis		-	-	•	-
Marenzelleria viridis	1	-	-	_	-

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#### Macroinvertebrate Results Data Per Square Meter (Unpooled)

Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

LW03-SD545 LW03-SD546 LW03-SD547 LW03-SD548 Station **Taxonomic** Replicate LW03-SD545-00-10C LW03-SD546-00-10C LW03-SD547-00-10C LW03-SD548-00-10C Classification Collection Date 09/01/10 09/01/10 09/07/10 09/09/10 Minuspio sp. Paraprionospio pinnata 14 Polydora cornuta Pseudopolydora sp. Scolelepis texana Spio sp. Spionidae (LPIL) Streblospio benedicti 14 Family: Terebellidae Loimia medusa Loimia sp. Pista cristata Terebellidae (LPIL) Order: Capitellida Family: Capitellidae Capitella capitata complex Blake Capitella jonesi Capitella sp. Capitellidae (LPIL) Heteromastus filiformis Mediomastus ambiseta Mediomastus californiensis Mediomastus sp. Order: Orbiniida Family: Orbiniidae Leitoscoloplos fragilis Leitoscoloplos sp. Orbiniidae (LPIL) Scoloplos rubra Order: Phyllodocida Family: Pilargidae Sigambra tentaculata Order: Unspecified Family: Maldanidae Clymenella torquata Class: Clitellata Order: Haplotaxida Family: Naididae Paranais frici Family: Tubificoid Naididae Tubificoid Naididae imm. w/o hair setae (LPIL) Tubificoides sp. Phylum: Arthropoda Class: Malacostraca Order: Amphipoda

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Family: Aoridae Aoridae (LPIL)



Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic Classification	Station Replicate Collection Date	LW03-SD545 LW03-SD545-00-10C	LW03-SD546 LW03-SD546-00-10C	LW03-SD547 LW03-SD547-00-10C	LW03-SD548 LW03-SD548-00-10C
Family: Corophiidae	ekkerintetta ekkerintettä tittivitti onnan tiiranja kakalutus osoonaal	NAN-SEMECHINGRIET MONTSSELLEN WIE GEGLENSRESH VOOR STONTSSCHOOP VE AL EVERSMAN			olociario del 200 cilio col mismo el desfello el limino con cia despesa sinue esti, vecazio con caso.
Monocorophium acherusicum		<u>.</u>	-	_	_
Monocorophium insidiosum		<u>-</u>	-		
Monocorophium sp.		-	_	_	_
Family: Liljeborgiidae					
Listriella clymenellae		-	_	_	_
Order: Cumacea					
Family: Bodotriidae					
Cyclaspis varians		_	_	_	_
Family: Leuconidae		£			
Leucon americanus			_	_	_
Family: Unspecified					
Cumacea (LPIL)		_	_	_	_
Order: Decapoda					-
Family: Alpheidae				4	
Alpheus sp.		_	_	_	_
Family: Palaemonidae					
Palaemonetes sp.			_	_	
Family: Panopeidae				_	-
Panopeidae (LPIL)		_	_		
Panopelae (El IE) Panopela herbstii		_	_		-
Rhithropanopeus harrisii			_	_	-
Family: Pinnotheridae		-	_	_	-
Pinnixa sp.		_	_		
Family: Portunidae		-		-	-
Callinectes sp.					
Portunidae (LPIL)		_	_	•	-
Family: Unspecified		-		-	-
Decapoda (LPIL)		_	_	j	
		_		-	-
Decapoda (zoea) Decapoda zoea (larva)		_			-
Order: Isopoda		-		-	-
Family: Idoteidae					
Edotia triloba		_	_		
Order: Leptostraca				-	-
Family: Unspecified					
Leptostraca (LPIL)		-	_	_	
Order: Mysida					-
Family: Mysidae					
Americamysis bigelowi		_	_	_	
Americamysis sp.			_	_	_
Mysidae (LPIL)				_	_
		_	_		_
Neomysis americana Family: Unspecified		-	_	· •	-
Mysidacea (LPIL)			_		
Order: Stomatopoda		•	1	_	-
Family: Squillidae				!	
railiny. Squiilluae			}		

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# Macroinvertebrate Results Data Per Square Meter (Unpooled)

Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic Classification	Station Replicate Collection Date	LW03-SD545 LW03-SD545-00-10C	LW03-SD546 LW03-SD546-00-10C	LW03-SD547 LW03-SD547-00-10C 09/07/10	LW03-SD548 LW03-SD548-00-10C 09/09/10
Squilla empusa	4800-2014 (* 1885) 1885 (* 1880) 1864 (* 1885) 1885 (* 1885) 1885 (* 1885) 1885 (* 1885) 1885 (* 1885) 1885 (*	ennennennen (1904), krist had bild socken krist killen den bestellt den bestellt kristen och socken och socken 			n 1984 tag, n 1999 gapin (1999) (1999
Class: Maxillopoda					
Order: Sessilia		1 1 1			
Family: Balanoidea		5			
Balanus improvisus		-	-	-	-
Family: Balanomorpha					
Balanomorpha (LPIL)		-	-	-	-
Class: Entognatha					
Order: Collembola					
Family: Unspecified					
Collembola (LPIL)		-	-	-	-
Class: Unspecified					
Order: Unspecified					
Family: Unspecified					
Crustacea (LPIL)		-	-	-	-
Phylum: Mollusca					
Class: Gastropoda					
Order: Cephalaspidea					
Family: Cylichnidae					
Acteocina canaliculata		-	-	-	-
Acteocina sp.		-	-	-	-
Order: Heterostropha					
Family: Pyramidellidae		1			
Odostomia engonia		-	-	-	-
Order: Heterostropha					
Family: Pyramidellidae					
Turbonilla interrupta		-	-	-	-
Order: Neogastropoda		1			
Family: Columbellidae					
Astyris lunata		-	-	-	-
Nassarius vibex		-	-	-	-
Family: Conidae					
Pyrgocythara plicosa		-	-		-
Order: Neotaenioglossa					
Family: Calyptraeidae					
Crepidula fornicata		- -	-	-	-
Crepidula plana		• •		<b>.</b>	=
Order: Neotaenioglossa			- Consideration		
Family: Cerithiopsidae					
Cerithiopsis greenii Order: Neotaenioglossa		- !	-	-	-
Family: Epitoniidae		1 1 1			
Epitonium rupicola		!			
Order: Unspecified		<u>-</u>	-	-	-
Family: Unspecified					
		;			
Gastropoda (LPIL) Class: Bivalvia			-	-	-
Ciass. Divalvia					

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Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

2010

Taxonomic Classification	Station Replicate Collection Date	LW03-SD545 LW03-SD545-00-10C	LW03-SD546 LW03-SD546-00-10C	LW03-SD547 LW03-SD547-00-10C	LW03-SD548 LW03-SD548-00-10C
Order: Arcoida	nus unitrializate virus (gripo) en sentido para sentido (a entre de la composição (a esta en esta en esta esta Esta esta esta entre esta entre esta entre esta entre esta entre esta entre esta entre esta entre esta entre e	Ancides de Principa de Principa de la 1940 de 1970 de	Sidit on mentanomiki omni cisattatanik tersi sekti cisatasaan konsus consums anno kons	96 (14 м) на 1964 (1964	$^{AP}_{CLL(0)}(t) = \frac{1}{2} \left( $
Family: Arcidae					
Anadara transversa		-		<u>-</u>	-
Order: Mytiloida		1			
Family: Mytilidae		- Parameters			
Amygdalum papyrium		-	-	<del>-</del>	-
Order: Ostreoida					
Family: Anomiidae		1 7 8 9			
Anomia simplex		-	-	-	-
Order: Ostreoida		Profession and the second seco			
Family: Anomiidae		renew at the second sec			
Pododesmus rudis		· •	-	-	-
Order: Ostreoida		1			
Family: Ostreidae		***			
Crassostrea virginica		-	-	-	-
Order: Pholadomyoida					
Family: Lyonsiidae					
Lyonsia hyalina		-	-	-	-
Order: Veneroida					
Family: Mactridae					
Mactridae (LPIL)			-	-	-
Mulinia lateralis		<del>-</del>	-	_	-
Mulinia lateralis		•	-	-	-
Family: Petricolidae					
Petricolaria pholadiformis		; 	-	-	-
Family: Solecurtidae			90 ob. 188-199		
Tagelus plebeius		-	-	-	-
Tagelus sp.		-	-	-	-
Family: Tellinidae					
Macoma tenta		-	-	-	-
Tellinidae (LPIL)		•	-	•	-
Family: Veneridae					
Gemma gemma		<del>-</del>	-	29	-
Order: Veneroida		· [			
Family: Veneridae  Mercenaria mercenaria					
Order: Veneroida		-	-	-	-
Family: Veneridae					
Pitar sp.					
Veneridae (LPIL)		_	_	187	-
Order: Unspecified		; <del>-</del> !	-	10/	-
Family: Unspecified					
Bivalvia (LPIL)		; ;	_	_	_
Phylum: Phoronida				-	-
Class: Unspecified					
Order: Unspecified		I I			
Family: Unspecified					
, , , , , , , , , , , , , , , , , , , ,				i i	

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## Macroinvertebrate Results Data Per Square Meter (Unpooled)

Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Au

Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Classification co		09/01/10	09/01/10	09/07/10	LW03-SD548-00-10C 09/09/10
Phoronida (LPIL)	accompagning and an artist and an artist and an artist and artist and artist and artist and artist and artist and artist and artist and artist artist and artist artist and artist artist and artist a	amento aura destribili dy cuto a Arabontoment y officio materiori dia personali del dell'opa dell'embelling e a trifeto di 	STATE OF COLUMN TO THE STATE OF	as militrores de la compressión de compressión de la compressión de la compressión de la compressión de la del 	alternation (1992). A Market of the contact considerated the Administration (A FO Administration (A FO Administration of Consideration of Consideration (A FO Administration of Consideration of
Phylum: Echinodermata					
Class: Ophiuroidea					
Order: Unspecified					
Family: Unspecified					
Ophiuroidea (LPIL)		-	-	-	-
Phylum: Chordata					
Class: Cephalochordata					
Order: Amphioxiformes					
Family: Branchiostomatidae					
Branchiostoma sp.		-	-	-	-
No Organisms Present		✓	✓	-	-
Total Organisms		14	14	287	14
Total Taxa		N/A	N/A	6	1



### **Macroinvertebrate Results Data Per Square Meter (Unpooled)**

Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station	LW03-SD549	LW03-SD550-01	LW03-SD551	LW03-SD552
Classification	Replicate	LW03-SD549-00-10C	LW03-SD550-01-10C	LW03-SD551-00-10C	LW03-SD552-00-10C
\$200.0000000000000000000000000000000000	Collection Date	09/09/10	09/08/10	09/08/10	09/07/10
Phylum: Porifera					
Class: Unspecified					
Order: Unspecified					Add of the second
Family: Unspecified					Transport
Porifera (LPIL)		-	-	-	_
Phylum: Cnidaria					
Class: Hydrozoa					
Order: Unspecified					
Family: Unspecified					
Hydrozoa (LPIL)		-	-	-	-
Class: Anthozoa					And the second s
Order: Actiniaria					
Family: Unspecified					
Actiniaria (LPIL)		-	-	-	-
Actiniaria sp. A		-	-	-	-
Order: Unspecified					
Family: Unspecified					
Anthozoa (LPIL)		<u>-</u>	-	-	-
Phylum: Nemertea					
Class: Unspecified					
Order: Unspecified					
Family: Unspecified				The second secon	
Nemertea (LPIL)		-	-	-	_
Nemertea sp. A (LPIL)		-	-	-	-
Nemertea sp. B (LPIL)		-	-	-	-
Nemertea sp. C (LPIL)		-	-	-	
Nemertea sp. D (LPIL)		-	-	-	-
Phylum: Annelida Class: Polychaeta				I.	
Order: Aciculata					
Family: Dorvilleidae					
Dorvillea (Schistomeringos) ru	dolphi		- Addition		
Dorvilleidae (LPIL)	ιασιμπι	_	_	-	-
Family: Eunicidae		-	_	-	
Marphysa sanguinea		-	_	<u>_</u>	
Family: Glyceridae					
Glycera americana		<u>-</u>	_	_	
Glycera dibranchiata		_	-	_	_
Glycera sp.		_	_	<u>.                                      </u>	
Ophioglycera sp.		_	_	_	_
Family: Goniadidae					
Glycinde solitaria		-	_	<u>-</u>	-
Family: Hesionidae					
Gyptis crypta		_	-	<u>-</u>	-
Hesionidae (LPIL)		<u>-</u>	-	<u>-</u>	-
Podarke obscura		· -	-	<u>-</u>	-
Family: Nereididae			Fr. Account		

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Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station		LW03-SD550-01	LW03-SD551	LW03-SD552
Classification	Replicate Collection Date	LW03-SD549-00-10C	LW03-SD550-01-10C	LW03-SD551-00-10C	LW03-SD552-00-10C
		CO/CO/TO	CONCONTO	09/00/10	OS/OTTO
Laeonereis culveri		-	-	-	-
Neanthes succinea		-	-	-	-
Nereididae (LPIL)		-	-	-	•
Platynereis dumerilii		-	-	-	-
Family: Oenonidae					
Drilonereis longa		-	-	-	-
Family: Onuphidae					
Diopatra cuprea		-	-	-	-
Family: Phyllodocidae					
Eteone sp.		-	-	-	-
Eumida sanguinea		-	-	-	-
Phyllodoce mucosa		-	-	-	-
Phyllodocidae (LPIL)		-	-	-	-
Family: Polynoidae					
Lepidonotus sp.		-	-	-	-
Family: Syllidae					
Grubeosyllis clavata		_	-	-	-
Syllidae (LPIL)		-	-	-	-
Order: Canalipalpata		1			
Family: Ampharetidae					
Ampharetidae (LPIL)		-	_	-	-
Family: Chaetopteridae					
Spiochaetopterus costarum		-	_	-	_
Family: Cirratulidae					
Aphelochaeta sp.		<u> </u>	-	•	-
Cirratulidae (LPIL)		_	-	-	_
Tharyx sp.		-	-	-	-
Family: Pectinariidae					
Pectinaria gouldii		_	-	<u>-</u>	_
Pectinaria sp.		<u>.</u>	-	_	_
Family: Sabellidae					
Demonax microphthalmus		<u>-</u>	-	· -	_
Sabellaria vulgaris		_	_	_	_
Sabellidae (LPIL)		_	_	_	_
Sabellinae (LPIL)		_	_		_
Family: Serpulidae					
Hydroides dianthus			_		_
Family: Serpulidae					
Hydroides diathus		_	_	!	_
Family: Serpulidae			_		_
Hydroides sp.					
		-	_	_	-
Serpulidae (LPIL)		<u>-</u>	-	-	-
Family: Spionidae		1			
Apoprionospio pygmaea		- 1	_	- -	-
Dipolydora cauleri		-	-	• :	-
Dipolydora socialis		-	-	<u>-</u>	-
Marenzelleria viridis		-	-	-	-

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Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept 2010 Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

6821 SW Archer Road Gainesville, FL 32608 www.waterandair.com

Taxonomic Classification	Station Replicate Collection Date	LW03-SD549 LW03-SD549-00-10C	LW03-SD550-01 LW03-SD550-01-10C 09/08/10	LW03-SD551 LW03-SD551-00-10C 09/08/10	LW03-SD552 LW03-SD552-00-10C 09/07/10
Minuspio sp.	PANTA DI RAMANDE DI COMPRESO, AL MARIA PARA L'ELLEZA	n, sistem kiri, in nyakez inaginiyakezi inaginin kirikatakezi kiri (hari di haringa mususasian i sanakebbaa 	ekilyik (delekile) ( delekile) (delekile) (d	error de la companya del la companya de la companya	
Paraprionospio pinnata		-	_	14	-
Polydora cornuta		-	-	14	-
Pseudopolydora sp.		-	-	-	_
Scolelepis texana		-	_	-	_
Spio sp.		_	-	-	_
Spionidae (LPIL)		. <del>-</del>	_	-	_
Streblospio benedicti		<u>.</u>	-	14	_
Family: Terebellidae			ili ve		
Loimia medusa		_	_	<u>-</u>	_
Loimia sp.		-	_	-	_
Pista cristata			-	_	_
Terebellidae (LPIL)		-	-	_	_
Order: Capitellida				i :	-
Family: Capitellidae					
Capitella capitata complex Blake			_		
Capitella jonesi		r = =		-	-
Capitella sp.			-	-	-
Capitellidae (LPIL)		- -	-	- !	-
Heteromastus filiformis		-	-	-	-
		<u>-</u>	-	-	-
Mediomastus ambiseta		. <del>.</del> ;	-	-	-
Mediomastus californiensis		-	-	-	-
Mediomastus sp.			-	•	-
Order: Orbiniida					
Family: Orbiniidae			A co		
Leitoscoloplos fragilis		- :	-	-	-
Leitoscoloplos sp.		•	-		-
Orbiniidae (LPIL)		-	-	-	-
Scoloplos rubra		-	-	-	-
Order: Phyllodocida		\$ }			
Family: Pilargidae					
Sigambra tentaculata		-	-	-	-
Order: Unspecified		2			
Family: Maldanidae					
Clymenella torquata		-	-	-	-
Class: Clitellata					
Order: Haplotaxida					
Family: Naididae		1		l	
Paranais frici		<b>-</b>	-	<u>-</u>	-
Family: Tubificoid Naididae		) 		Ì	
Tubificoid Naididae imm. w/o hair	setae (LPIL)	-	-	-	-
Tubificoides sp.		<u>-</u>	-	-	-
Phylum: Arthropoda			Control of the Contro	1	
Class: Malacostraca					
Order: Amphipoda					
Family: Aoridae			-	· · ·	
Aoridae (LPIL)		· -	-	<u>-</u>	-

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Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept
2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Gainesville, FL 32608 www.waterandair.com

Гахопотіс Classification	Station Replicate Collection Date	LW03-SD549 LW03-SD549-00-10C	LW03-SD550-01 LW03-SD550-01-10C	LW03-SD551 LW03-SD551-00-10C	
	Solidation bate	09/09/10	09/08/10	09/08/10	09/07/10
Family: Corophiidae					
Monocorophium acherusicum		-	-	-	-
Monocorophium insidiosum		-	-	-	-
Monocorophium sp.		-	-	•	-
Family: Liljeborgiidae					
Listriella clymenellae		-	-	-	-
Order: Cumacea					
Family: Bodotriidae					
Cyclaspis varians		-	-	-	-
Family: Leuconidae					
Leucon americanus		-	-	-	-
Family: Unspecified					
Cumacea (LPIL)		-	-	-	-
Order: Decapoda					
Family: Alpheidae					
Alpheus sp.		-	-	-	-
Family: Palaemonidae					
Palaemonetes sp.		-	-	-	-
Family: Panopeidae					
Panopeidae (LPIL)		-	-	-	-
Panopeus herbstii		-	_	-	-
Rhithropanopeus harrisii		-	-	_	_
Family: Pinnotheridae					
Pinnixa sp.		-	_	_	_
Family: Portunidae					
Callinectes sp.		_	_	_	_
Portunidae (LPIL)		_	_	_	_
Family: Unspecified					
Decapoda (LPIL)		-	_	_	_
Decapoda (zoea)		_	_	_	_
Decapoda zoea (larva)		29	_	_	_
Order: Isopoda		20		_	-
Family: Idoteidae					
Edotia triloba		_	_		
Order: Leptostraca		_	-		-
Family: Unspecified					
Leptostraca (LPIL)					
Order: Mysida		-	-	-	-
Family: Mysidae					
Americamysis bigelowi		-	-	-	-
Americamysis sp.		*	-	-	-
Mysidae (LPIL)		=	-	-	-
Neomysis americana		-	-	-	-
Family: Unspecified					
Mysidacea (LPIL)		<del>-</del>	-	-	-
Order: Stomatopoda					
Family: Squillidae				1	

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Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept 2010 Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

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Taxonomic	Station Replicate	LW03-SD549	LW03-SD550-01	LW03-SD551	LW03-SD552
Classification	Collection Date	09/09/10	09/08/10	LW03-SD551-00-10C	LW03-SD552-00-100 09/07/10
Squilla empusa	r man en immer () tour en bestruisske meder er men stommer het <sub>en seen</sub>	ocataaninteen onnan teen siiteiteetiin teen ili Teen teen teen teen teen teen ja ja ja ja ja ja ja ja ja ja ja —	amanananananananananananananananananana		
Class: Maxillopoda					
Order: Sessilia					
Family: Balanoidea					
Balanus improvisus		-	-	-	-
Family: Balanomorpha					
Balanomorpha (LPIL)		-	-	-	-
Class: Entognatha					
Order: Collembola					
Family: Unspecified					
Collembola (LPIL)		<del>-</del>	-	-	-
Class: Unspecified					
Order: Unspecified					
Family: Unspecified					
Crustacea (LPIL)		-	-	-	-
Phylum: Mollusca					
Class: Gastropoda					
Order: Cephalaspidea					
Family: Cylichnidae					
Acteocina canaliculata		-	-	-	_
Acteocina sp.		-	-		-
Order: Heterostropha					
Family: Pyramidellidae				!	
Odostomia engonia		-	-	-	
Order: Heterostropha					
Family: Pyramidellidae					
Turbonilla interrupta		-	-	-	-
Order: Neogastropoda					
Family: Columbellidae					
Astyris lunata		-	-	-	-
Nassarius vibex		· •	-	-	-
Family: Conidae					
Pyrgocythara plicosa		_	-	-	-
Order: Neotaenioglossa				į	
Family: Calyptraeidae					
Crepidula fornicata		-	-	-	-
Crepidula plana		-	-	-	-
Order: Neotaenioglossa					
Family: Cerithiopsidae					
Cerithiopsis greenii		-	-	-	-
Order: Neotaenioglossa					
Family: Epitoniidae					
Epitonium rupicola		-	-	<u>-</u>	-
Order: Unspecified					
Family: Unspecified					
Gastropoda (LPIL)		-	-	-	_
Class: Bivalvia			ŀ		

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# Macroinvertebrate Results Data Per Square Meter (Unpooled)

Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station	LW03-SD549	LW03-SD550-01	LW03-SD551	LW03-SD552
Classification		LW03-SD549-00-10C	LW03-SD550-01-10C		LW03-SD552-00-10C
Order: Arcoida	## 1999#01-04-000000000000000000000000000000000	otto kalaista 19. taloitta taloita, kujukin joi joi kalaista 1964 ka kalaista 1964 ka kalaista ja joi ja kalais			
Family: Arcidae					
Anadara transversa		-	_	•	-
Order: Mytiloida					
Family: Mytilidae					
Amygdalum papyrium		-	-	-	-
Order: Ostreoida					
Family: Anomiidae					
Anomia simplex		-	-	-	-
Order: Ostreoida					
Family: Anomiidae					
Pododesmus rudis		-	-	-	-
Order: Ostreoida					
Family: Ostreidae					
Crassostrea virginica		-	-	-	-
Order: Pholadomyoida					
Family: Lyonsiidae					
Lyonsia hyalina		-	-	-	-
Order: Veneroida					
Family: Mactridae					
Mactridae (LPIL)		-	-	-	-
Mulinia lateralis		-	-	-	-
Mulinia lateralis		-	-	-	-
Family: Petricolidae					
Petricolaria pholadiformis		-	-	<del>-</del>	-
Family: Solecurtidae			· ·		
Tagelus plebeius		-	-	<u>-</u>	-
Tagelus sp.			-	€ <b></b>	-
Family: Tellinidae					
Macoma tenta		-	-	-	-
Tellinidae (LPIL)		= :	-	-	-
Family: Veneridae					
Gemma gemma		-	-	-	-
Order: Veneroida					
Family: Veneridae  Mercenaria mercenaria					
Order: Veneroida			-	. <del>-</del>	-
Family: Veneridae					
· -					
Pitar sp. Veneridae (LPIL)				<u> </u>	-
Order: Unspecified		3 ·		<u>-</u>	-
Family: Unspecified					
Bivalvia (LPIL)		_	_	<u>_</u>	_
Phylum: Phoronida					_
Class: Unspecified					
Order: Unspecified				i	
Family: Unspecified					

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Sample Method: Petite Ponar (x3)



## Macroinvertebrate Results Data Per Square Meter (Unpooled)

Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept

Report Date: 11/08/2010

2010

Taxonomic Classification	Station Replicate Collection Date	LW03-SD549 LW03-SD549-00-10C	LW03-SD550-01 LW03-SD550-01-10C	LW03-SD551 LW03-SD551-00-10C	LW03-SD552 LW03-SD552-00-10C
Phoronida (LPIL)		do rocco en estado estado estado estado estado estado en el constituido de la constituida de la constituida de 	podpolitikke na 49444466644464500444-000000000000000000000	Per Transition (Control of Control of State of Control	
Phylum: Echinodermata					
Class: Ophiuroidea					
Order: Unspecified					
Family: Unspecified					
Ophiuroidea (LPIL)		<u>-</u>	-	-	-
Phylum: Chordata					
Class: Cephalochordata					
Order: Amphioxiformes					
Family: Branchiostomatidae	<b>;</b>			de autorités	
Branchiostoma sp.		-	-	-	•
No Organisms Present		-	✓	-	✓
Total Organisms		29	14	43	14
Total Taxa		1	N/A	3	N/A



Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station	LW03-SD553	LW03-SD555	LW03-SD556	LW03-SD557
Classification	Replicate	LW03-SD553-00-10C		LW03-SD556-00-10C	LW03-SD557-00-10C
ANGLE CONTROL OF THE PROPERTY	Collection Date	09/07/10	09/09/10	09/08/10	09/08/10
Phylum: Porifera					
Class: Unspecified					T Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y
Order: Unspecified					
Family: Unspecified		i			a de la companya de l
Porifera (LPIL)		-	-	-	-
Phylum: Cnidaria				1	
Class: Hydrozoa					
Order: Unspecified		( } !			The state of the s
Family: Unspecified					
Hydrozoa (LPIL)		-	-	_	-
Class: Anthozoa					
Order: Actiniaria		1		1	
Family: Unspecified					
Actiniaria (LPIL)		-	-	-	-
Actiniaria sp. A		-	-	-	-
Order: Unspecified					
Family: Unspecified					
Anthozoa (LPIL)		-	-	_	-
Phylum: Nemertea				4	
Class: Unspecified					
Order: Unspecified		:			
Family: Unspecified					
Nemertea (LPIL)		<u>-</u>	-	-	-
Nemertea sp. A (LPIL)			-	-	-
Nemertea sp. B (LPIL)		-	-	-	-
Nemertea sp. C (LPIL)		-	-	-	-
Nemertea sp. D (LPIL)		-	-	<del>-</del>	-
Phylum: Annelida					A 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Class: Polychaeta		<u> </u>			
Order: Aciculata		:			
Family: Dorvilleidae					
Dorvillea (Schistomeringos) rud	olphi	<u>-</u>	-		-
Dorvilleidae (LPIL)		<u>-</u>	-	· _	-
Family: Eunicidae					
Marphysa sanguinea		14	-	-	-
Family: Glyceridae					
Glycera americana		<u> </u>	-	-	-
Glycera dibranchiata		-	-	-	-
Glycera sp.		-	-	-	-
Ophioglycera sp.		-	-	<u>-</u>	-
Family: Goniadidae		1		ł.	
Glycinde solitaria		14	-	-	-
Family: Hesionidae		i			The state of the s
Gyptis crypta		-	_	-	-
Hesionidae (LPIL)		14	-	<u>.</u>	-
Podarke obscura		-	-	<del>-</del>	-
Family: Nereididae					

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# Macroinvertebrate Results Data Per Square Meter (Unpooled)

Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station	LW03-SD553	LW03-SD555	LW03-SD556	LW03-SD557
Classification	Collection Date	09/07/10	09/09/10	LW03-SD556-00-10C	LVV03-SD557-00-10C 09/08/10
Laeonereis culveri		Chicago (Color Color and a sum of the contract of the sum of the contract of the co	Prince and the state of the sta	### Office of the American Company of the American Com	
Neanthes succinea		-	-	-	-
Nereididae (LPIL)		-	_	-	-
Platynereis dumerilii		-	-	-	-
Family: Oenonidae					The Addition of the Control of the C
Drilonereis longa		-	-	-	-
Family: Onuphidae					
Diopatra cuprea		-	-	-	_
Family: Phyllodocidae		:			
Eteone sp.		-	-	-	_
Eumida sanguinea		-	_	-	-
Phyllodoce mucosa		-	_		-
Phyllodocidae (LPIL)		-	-	_	_
Family: Polynoidae					
Lepidonotus sp.		-	-	_	-
Family: Syllidae					
Grubeosyllis clavata		- -	-	-	_
Syllidae (LPIL)		-	-	_	_
Order: Canalipalpata					
Family: Ampharetidae					
Ampharetidae (LPIL)		_	_	_	_
Family: Chaetopteridae					-
Spiochaetopterus costarum		_	_	_	_
Family: Cirratulidae					_
Aphelochaeta sp.		_	_	_	_
Cirratulidae (LPIL)		-	_	_	<u>-</u>
Tharyx sp.		_	_	_	_
Family: Pectinariidae					
Pectinaria gouldii		-	_	_	_
Pectinaria sp.		_	_	-	
Family: Sabellidae					_
Demonax microphthalmus		_	_	_	_
Sabellaria vulgaris		<u>-</u>	_	_	_
Sabellidae (LPIL)		_	-	-	_
Sabellinae (LPIL)		-	_	-	
Family: Serpulidae					-
Hydroides dianthus		. <del>-</del>	_		_
Family: Serpulidae					_
Hydroides diathus		_	_		_
Family: Serpulidae					-
Hydroides sp.		14	_		_
Serpulidae (LPIL)		· ·	_	_	-
Family: Spionidae				- 	-
Apoprionospio pygmaea		- -	-	_	_
Dipolydora cauleri		- -	_	· •	-
Dipolydora cadien Dipolydora socialis		· _	_	•	-
Marenzelleria viridis			<u>-</u>		-
maionzonoria viriais		=	-	. •	-

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# Macroinvertebrate Results Data Per Square Meter (Unpooled)

Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic Classification	Station Replicate Collection Date	LW03-SD553 LW03-SD553-00-10C	LW03-SD555 LW03-SD555-00-10C		
CIASSIIICALIOII	Collection Date	09/07/10	09/09/10	09/08/10	09/08/10
<i>Minuspio</i> sp.		-	-	-	-
Paraprionospio pinnata		14	14	-	-
Polydora cornuta		-	-	•	-
Pseudopolydora sp.		-	-	-	-
Scolelepis texana		•	-	-	-
Spio sp.		-	-	-	-
Spionidae (LPIL)		-	-	-	-
Streblospio benedicti		<del>-</del>	172	43	-
Family: Terebellidae					
Loimia medusa		-	-	<u>-</u>	-
<i>Loimia</i> sp.		14	-	-	-
Pista cristata		-	-	-	-
Terebellidae (LPIL)		14	-	-	-
Order: Capitellida					
Family: Capitellidae					a-b-processing
Capitella capitata complex Blake		14	-	-	-
Capitella jonesi		•	-	-	-
Capitella sp.		-	-	-	-
Capitellidae (LPIL)		-	-	-	-
Heteromastus filiformis		14	-	-	-
Mediomastus ambiseta		-	-	-	-
Mediomastus californiensis		-	-	-	-
Mediomastus sp.		-	-	-	-
Order: Orbiniida					
Family: Orbiniidae					
Leitoscoloplos fragilis		-	-	-	-
Leitoscoloplos sp.		-	-	-	-
Orbiniidae (LPIL)		-	-	-	-
Scoloplos rubra		-	-	-	-
Order: Phyllodocida					
Family: Pilargidae					
Sigambra tentaculata		-	-	-	-
Order: Unspecified					
Family: Maldanidae					
Clymenella torquata		-	=	-	-
Class: Clitellata				; !	
Order: Haplotaxida					
Family: Naididae				1	
Paranais frici			-	-	-
Family: Tubificoid Naididae					
Tubificoid Naididae imm. w/o hai	setae (LPIL)		-	-	-
Tubificoides sp.	·	-	-	-	-
Phylum: Arthropoda					
Class: Malacostraca					
Order: Amphipoda					
Family: Aoridae					
Aoridae (LPIL)		-	-	_	-

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### **Macroinvertebrate Results Data Per Square Meter (Unpooled)**

Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept 2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station Replicate	LW03-SD553	LW03-SD555 LW03-SD555-00-10C	LW03-SD556	LW03-SD557
Classification	Collection Date	09/07/10	09/09/10	09/08/10	09/08/10
Family: Corophiidae	entralisation de l'ainceanne de la reproduction de l'ainceand de l'ainceand de l'Ainceanne de l'Ainceanne de l	as van sensatur võikusuurikkastik ärenkissi 1950 til tillikkile kiliiliksesen ja ja van asemaalus.	er rekiske bille bekel i kill i kill i 1980	BETTERNELECTORING ENTRETTY (1755 - TOTALISMONIC BENEVIEW AND THE POSITION BENEVIEW AND THE POSIT	The Control of the Co
Monocorophium acherusicum		-	-	-	-
Monocorophium insidiosum		<b>-</b>	-	-	-
Monocorophium sp.		-	-	-	-
Family: Liljeborgiidae					
Listriella clymenellae		; -	-	_	-
Order: Cumacea					
Family: Bodotriidae					
Cyclaspis varians		_			-
Family: Leuconidae					
Leucon americanus		-	-		_
Family: Unspecified					
Cumacea (LPIL)		-	-	_	-
Order: Decapoda		1			
Family: Alpheidae					
Alpheus sp.		_	_		-
Family: Palaemonidae					
Palaemonetes sp.		_		_	_
Family: Panopeidae					
Panopeidae (LPIL)		_		_	_
Panopeus herbstii		· !	_	_	_
Rhithropanopeus harrisii		_	-	_	_
Family: Pinnotheridae					
Pinnixa sp.		-		-	_
Family: Portunidae		; ;			
Callinectes sp.		_	_	_	_
Portunidae (LPIL)		-	_	_	_
Family: Unspecified			30.	į	
Decapoda (LPIL)		_	_	_	14
Decapoda (zoea)		-	-	_	_
Decapoda zoea (larva)		_	_	29	14
Order: Isopoda		1		<u></u>	• •
Family: Idoteidae					
Edotia triloba		-	_	<u>-</u>	-
Order: Leptostraca					
Family: Unspecified					
Leptostraca (LPIL)		-		_	_
Order: Mysida					
Family: Mysidae					
Americamysis bigelowi		_	_	_	_
Americamysis sp.		_	_	_	_
Mysidae (LPIL)		<u> </u>	-	14	_
Neomysis americana		-	_	_	14
Family: Unspecified					. ,
Mysidacea (LPIL)		-	_	<u>-</u>	_
Order: Stomatopoda		1			
Family: Squillidae		:			
, , , , , , , , , , , , , , , , , , , ,					

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Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station	LW03-SD553	LW03-SD555	LW03-SD556	LW03-SD557
Classification	Replicate Collection Date	LW03-SD553-00-10C	LW03-SD555-00-10C		
Squilla empusa	r y plake gyyddigwyddiaeth y y mawn am a mae'n y mae'n a mae'n am ar allaeth a gyf y gyn y fl		essekinikasin san tarangiken katangan engika sasam dengan katangan samba sasam sabani ==		
Class: Maxillopoda					
Order: Sessilia					
Family: Balanoidea	:				
Balanus improvisus		-	-	-	_
Family: Balanomorpha					
Balanomorpha (LPIL)		-	-	-	-
Class: Entognatha					
Order: Collembola					
Family: Unspecified					
Collembola (LPIL)		-	-	<u>-</u>	-
Class: Unspecified					
Order: Unspecified					
Family: Unspecified					
Crustacea (LPIL)		14	-	-	-
Phylum: Mollusca					
Class: Gastropoda					
Order: Cephalaspidea					
Family: Cylichnidae					
Acteocina canaliculata		14	-	-	-
Acteocina sp.		-	-	-	-
Order: Heterostropha					
Family: Pyramidellidae					
Odostomia engonia		-	-	-	-
Order: Heterostropha					
Family: Pyramidellidae					
Turbonilla interrupta		-	-	-	-
Order: Neogastropoda					
Family: Columbellidae					
Astyris lunata		<u>-</u>	-	-	_
Nassarius vibex		-	-	-	-
Family: Conidae		14			
Pyrgocythara plicosa Order: Neotaenioglossa		14	-	-	-
Family: Calyptraeidae					
Crepidula fornicata		_	_	_	
Crepidula plana		_	_		_
Order: Neotaenioglossa					_
Family: Cerithiopsidae					
Cerithiopsis greenii		_	-	-	
Order: Neotaenioglossa					
Family: Epitoniidae					
Epitonium rupicola		- -	-		-
Order: Unspecified					
Family: Unspecified					
Gastropoda (LPIL)		1 /	-	; ;	-
Class: Bivalvia		: A -			
					•

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Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept 2010 Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

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Taxonomic Classification	Station Replicate Collection Date	LW03-SD553 LW03-SD553-00-10C 09/07/10	LW03-SD555 LW03-SD555-00-10C 09/09/10	LW03-SD556 LW03-SD556-00-10C 09/08/10	LW03-SD557 LW03-SD557-00-10C 09/08/10
Order: Arcoida	ika 16-kuan keesan kuluun kan kan 1 <sub>726-188</sub>		ekinterilarumikirossakrili liberiläreniinti täläikinga popujuunaanan – 2. usaajauna siyaajuu pyysys	PER PER ON PROPERTY OF PROBABILITIES AND COMMISSION CONSIDERATION OF THE PROPERTY OF THE PROPE	THE SECTION OF THE PROPERTY OF
Family: Arcidae					
Anadara transversa		-	-	-	_
Order: Mytiloida					
Family: Mytilidae					
Amygdalum papyrium		-	<del>-</del>	-	-
Order: Ostreoida					
Family: Anomiidae					
Anomia simplex		14	-	-	_
Order: Ostreoida					
Family: Anomiidae					
Pododesmus rudis		-	<u>.</u>	_	-
Order: Ostreoida					
Family: Ostreidae			*		
Crassostrea virginica		<u>-</u>	-	_	-
Order: Pholadomyoida					
Family: Lyonsiidae					
Lyonsia hyalina		-	_	_	_
Order: Veneroida		1 1			
Family: Mactridae					
Mactridae (LPIL)		_	-	_	_
Mulinia lateralis		<u> </u>	<u>-</u>	<u>-</u>	_
Mulinia lateralis		29	-	_	_
Family: Petricolidae					
Petricolaria pholadiformis		_		_	_
Family: Solecurtidae					
Tagelus plebeius		_	_	_	_
Tagelus sp.		14	_	_	_
Family: Tellinidae					
Macoma tenta		_	_	_	-
Tellinidae (LPIL)		. <u>-</u>	-	_	-
Family: Veneridae					
Gemma gemma		14	-	-	_
Order: Veneroida		* • • • • • • • • • • • • • • • • • • •			
Family: Veneridae				:	
Mercenaria mercenaria		_	-	-	-
Order: Veneroida					
Family: Veneridae		\ : }		4	
Pitar sp.		-	-	-	-
Veneridae (LPIL)		57	-	-	_
Order: Unspecified					
Family: Unspecified				ı İ	
Bivalvia (LPIL)		<del>-</del>	-	-	-
Phylum: Phoronida				1	
Class: Unspecified		i L			
Order: Unspecified				:	
Family: Unspecified		•		:	
				,	

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Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept 2010 Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

sville, FL 32608 aterandair.com

Taxonomic Classification	Station Replicate Collection Date	LW03-SD553 LW03-SD553-00-10C	LW03-SD555 LW03-SD555-00-10C 09/09/10	LW03-SD556 LW03-SD556-00-10C 09/08/10	LW03-SD557 LW03-SD557-00-10C
Phoronida (LPIL)		14	Control and the Control and Co	###***********************************	- Asperture natural constitution of the special specia
Phylum: Echinodermata					
Class: Ophiuroidea					
Order: Unspecified					
Family: Unspecified					
Ophiuroidea (LPIL)			-	-	-
Phylum: Chordata					
Class: Cephalochordata					
Order: Amphioxiformes				1	
Family: Branchiostomatidae	€				
Branchiostoma sp.		-	-	-	-
No Organisms Present		-	-	-	-
Total Organisms		316	187	101	43
Total Taxa		18	2	4	3



### Macroinvertebrate Results Data Per Square Meter (Unpooled)

Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic Classification Phylum: Porifera Class: Unspecified	Replicate Collection Date	LW03-SD558-01-10C 09/08/10	LW03-SD559-00-10C	LW03-SD562-00-10C	LW03-SD563-00-10C
Phylum: Porifera	Collection Date	09/08/10	09/07/10		
			03/01/10	09/08/10	09/08/10
Class: Unenscified					
Ciass. Olispecilled					
Order: Unspecified					
Family: Unspecified					
Porifera (LPIL)		-	14	-	-
Phylum: Cnidaria					
Class: Hydrozoa					
Order: Unspecified		· i			
Family: Unspecified					
Hydrozoa (LPIL)		-	_	-	-
Class: Anthozoa					
Order: Actiniaria					
Family: Unspecified					
Actiniaria (LPIL)		-	-	-	-
Actiniaria sp. A		<u>-</u>	-	-	-
Order: Unspecified					
Family: Unspecified			Table Balling Control of the Control		
Anthozoa (LPIL)		-	-	-	-
Phylum: Nemertea		1			
Class: Unspecified					
Order: Unspecified		1			
Family: Unspecified					The state of the s
Nemertea (LPIL)		-	-	-	-
Nemertea sp. A (LPIL)		-	-	-	_
Nemertea sp. B (LPIL)		-	-	=	-
Nemertea sp. C (LPIL)		-	-	-	=
Nemertea sp. D (LPIL)		-	-	-	-
Phylum: Annelida					
Class: Polychaeta					
Order: Aciculata					
Family: Dorvilleidae		1			1
Dorvillea (Schistomeringos) rudo	olphi	-	-	-	-
Dorvilleidae (LPIL)		-	-	-	-
Family: Eunicidae					
Marphysa sanguinea		-	-	-	-
Family: Glyceridae					
Glycera americana		-	_	-	-
Glycera dibranchiata		-	-	j -	-
Glycera sp.		-	-	-	-
Ophioglycera sp.		-	-	-	-
Family: Goniadidae				) }	
Glycinde solitaria		-	-	-	-
Family: Hesionidae					
Gyptis crypta		-	-	-	-
Hesionidae (LPIL)		-	-	-	-
Podarke obscura		-	-	-	-
Family: Nereididae				* * * * * * * * * * * * * * * * * * * *	

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Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station	LW03-SD558-01	LW03-SD559	LW03-SD562	LW03-SD563
Classification			LW03-SD559-00-10C	LW03-SD562-00-10C	LW03-SD563-00-10C
Laeonereis culveri	era eta arrika era era arribarak eta eta eta eta eta eta eta eta eta eta	de dalika we ili ya kiki in da wakezakezakezika en esalerian wanezio zenyeni en erekenakean pasake arrasakea 	\$500000 characteristic control on 111000000000000000000000000000000000		
Neanthes succinea		14	_	_	-
Nereididae (LPIL)		-	_	_	•
Platynereis dumerilii		_	_	_	-
Family: Oenonidae		_	_	-	-
Drilonereis longa				or I see and	
Family: Onuphidae		_	-	-	-
Diopatra cuprea					
Family: Phyllodocidae		_	-	-	-
Eteone sp.		-	-	-	-
Eumida sanguinea		-	-	-	-
Phyllodoce mucosa		-	-	-	-
Phyllodocidae (LPIL)		-	-	-	-
Family: Polynoidae					
Lepidonotus sp.		-	-	-	-
Family: Syllidae					
Grubeosyllis clavata		-	-	-	-
Syllidae (LPIL)		-	-	-	-
Order: Canalipalpata					
Family: Ampharetidae					
Ampharetidae (LPIL)		-	-	-	-
Family: Chaetopteridae					
Spiochaetopterus costarum		-	-	-	-
Family: Cirratulidae					
Aphelochaeta sp.		-	-	-	-
Cirratulidae (LPIL)		-	-	-	-
Tharyx sp.		-	-	-	-
Family: Pectinariidae		and and and and and and and and and and			
Pectinaria gouldii		-	-	-	-
Pectinaria sp.		-	-	-	-
Family: Sabellidae					
Demonax microphthalmus		-	-	-	- ′
Sabellaria vulgaris		-	-	-	-
Sabellidae (LPIL)		-	-	-	-
Sabellinae (LPIL)		-	-	-	-
Family: Serpulidae					
Hydroides dianthus		-	-	-	-
Family: Serpulidae					
Hydroides diathus		<u>-</u>	-	-	-
Family: Serpulidae		İ			
Hydroides sp.		<u>-</u>	-	-	-
Serpulidae (LPIL)		<u>.</u>	-	<del>-</del>	-
Family: Spionidae					
Apoprionospio pygmaea		· -	-	-	-
Dipolydora cauleri		-	-	-	-
Dipolydora socialis		-	-	=	-
Marenzelleria viridis		· -	-	<u>-</u>	-

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Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

2010

Taxonomic Classification	Station Replicate Ilection Date	LW03-SD558-01 LW03-SD558-01-10C	LW03-SD559 LW03-SD559-00-10C 09/07/10	LW03-SD562 LW03-SD562-00-10C 09/08/10	LW03-SD563 LW03-SD563-00-100 09/08/10
Minuspio sp.	artiform of the Market Carlot Several transverse and	- COOKERS OF THE PROPERTY OF T	andere ett til en ett til til til state ett til til state ett til til ett til ett til til ett til til ett til t =	en ferencia reconstanta para constitución de como constitución de entre con entre con entre con constitución d —	
Paraprionospio pinnata		-	14	-	-
Polydora cornuta		-	-	-	-
Pseudopolydora sp.		-	-	-	-
Scolelepis texana		-	-	-	-
Spio sp.		-	-	-	-
Spionidae (LPIL)		-	-	-	-
Streblospio benedicti		14	14	-	-
Family: Terebellidae					
Loimia medusa		-	-	-	-
Loimia sp.		-	-	-	-
Pista cristata		-	-	-	-
Terebellidae (LPIL)		-	-	-	-
Order: Capitellida					
Family: Capitellidae					
Capitella capitata complex Blake		-	-	_	-
Capitella jonesi		_	_		_
Capitella sp.		-	_	-	_
Capitellidae (LPIL)		_	_	_	-
Heteromastus filiformis		_	-	_	_
Mediomastus ambiseta		_	-	_	_
Mediomastus californiensis		_	_	_	-
Mediomastus sp.		_	_	_	_
Order: Orbiniida					
Family: Orbiniidae					
Leitoscoloplos fragilis		_	_	_	_
Leitoscolopios magnis Leitoscolopios sp.		_	_	_	_
Orbiniidae (LPIL)		_	_	_	_
Scolopios rubra			_	<u>_</u>	_
Order: Phyllodocida					
Family: Pilargidae					
Sigambra tentaculata			_		
Order: Unspecified		1	_		_
Family: Maldanidae					
Clymenella torquata Class: Clitellata		-	-	•	-
		1			
Order: Haplotaxida					
Family: Naididae					
Paranais frici		- 1	-	-	-
Family: Tubificoid Naididae					
Tubificoid Naididae imm. w/o hair se	rae (LPIL)	- -	-	-	-
Tubificoides sp.		-	-	-	-
hylum: Arthropoda					
Class: Malacostraca					
Order: Amphipoda					The state of the s
Family: Aoridae					in the state of th
Aoridae (LPIL)		-	-	! <b>-</b>	-

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Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station	LW03-SD558-01	LW03-SD559	LW03-SD562	LW03-SD563
Classification	Replicate Collection Date	LW03-SD558-01-10C	LW03-SD559-00-10C	LW03-SD562-00-10C	LW03-SD563-00-10C
Family: Corophiidae	erinismeran i manistassinismi koloniaminin eleksikka kiin oo oo ahki kiinissi				
Monocorophium acherusicum		-	_	_	_
Monocorophium insidiosum		- -	_	_	_
Monocorophium sp.		_	_	_	-
Family: Liljeborgiidae			_	-	-
Listriella clymenellae		<u>-</u>	_	_	_
Order: Cumacea			_	-	-
Family: Bodotriidae			Table 1 Table		
Cyclaspis varians		_	-	_	_
Family: Leuconidae				-	
Leucon americanus		_	_	_	-
Family: Unspecified					Applications of
Cumacea (LPIL)		_	_	_	-
Order: Decapoda					
Family: Alpheidae		100			The control of the co
Alpheus sp.		-	-	_	-
Family: Palaemonidae					
Palaemonetes sp.		i 	_	_	-
Family: Panopeidae			NA COLONIA		The state of the s
Panopeidae (LPIL)		-	-	_	-
Panopeus herbstii		•	-	-	-
Rhithropanopeus harrisii		;   -	-	-	-
Family: Pinnotheridae					to the second se
Pinnixa sp.		-	14	_	-
Family: Portunidae		<del>}</del>			
Callinectes sp.		-		-	-
Portunidae (LPIL)		-	-	-	-
Family: Unspecified		; ;	Balancine (Marie M		
Decapoda (LPIL)		-	_	-	-
Decapoda (zoea)		-	-	-	-
Decapoda zoea (larva)		-	-	: -	-
Order: Isopoda					
Family: Idoteidae					
Edotia triloba		-	-	- -	•
Order: Leptostraca					
Family: Unspecified		:			
Leptostraca (LPIL)		-	-	14	-
Order: Mysida					en el el el el el el el el el el el el el
Family: Mysidae					The state of the s
Americamysis bigelowi		-	-	-	-
Americamysis sp.		14	-	<u>.</u>	-
Mysidae (LPIL)		-	-	<u>-</u>	-
Neomysis americana		-	-	<u>-</u>	-
Family: Unspecified		1			
Mysidacea (LPIL)		-	-	<del>-</del>	-
Order: Stomatopoda		\$ 2			
Family: Squillidae				ŧ	- Control of the Cont

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# Macroinvertebrate Results Data Per Square Meter (Unpooled)

Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic Classification	Station Replicate	LW03-SD558-01 LW03-SD558-01-10C	LW03-SD559 LW03-SD559-00-10C	LW03-SD562 LW03-SD562-00-10C	LW03-SD563 LW03-SD563-00-10C
Classification	Collection Date	09/08/10	09/07/10	09/08/10	09/08/10
Squilla empusa		-	-		_
Class: Maxillopoda					and the second s
Order: Sessilia		1			
Family: Balanoidea					64 M
Balanus improvisus		-	-	<u>-</u>	-
Family: Balanomorpha					
Balanomorpha (LPIL)		-	-	-	-
Class: Entognatha					
Order: Collembola		1			
Family: Unspecified					
Collembola (LPIL)		-	-	- -	-
Class: Unspecified					
Order: Unspecified					
Family: Unspecified			PRAME PROVIDED TO THE PROVIDED TO THE PRAME PROVIDED TO THE PRAME PROVIDED TO THE PRAME PROVIDED TO THE PROVID		
Crustacea (LPIL)		-	-	-	<del>-</del>
Phylum: Mollusca					
Class: Gastropoda					
Order: Cephalaspidea					
Family: Cylichnidae					
Acteocina canaliculata		-	-		-
Acteocina sp.		-	-	-	-
Order: Heterostropha					
Family: Pyramidellidae					
Odostomia engonia		-	-	-	-
Order: Heterostropha					
Family: Pyramidellidae					
Turbonilla interrupta		-	-	-	<del>-</del>
Order: Neogastropoda					
Family: Columbellidae				4 2	
Astyris lunata		_	-	-	-
Nassarius vibex		-	-	-	-
Family: Conidae	•			ļ i	
Pyrgocythara plicosa		-	-	<u>-</u>	-
Order: Neotaenioglossa					
Family: Calyptraeidae					
Crepidula fornicata			-	-	-
Crepidula plana		-	-	-	-
Order: Neotaenioglossa					
Family: Cerithiopsidae  Cerithiopsis greenii					
Order: Neotaenioglossa		-	-	-	-
Family: Epitoniidae					
Epitonium rupicola			ned to construct the second se		
Order: Unspecified		- -	-	-	-
Family: Unspecified					
Gastropoda (LPIL)		1			
Class: Bivalvia		_ :	-	-	-
Jiggs. Divarvia			I	1	

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Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

				<u> </u>	
Taxonomic	Station	LW03-SD558-01	LW03-SD559	LW03-SD562	LW03-SD563
Classification	Collection Date	09/08/10	LVV03-SD559-00-10C 09/07/10	LW03-SD562-00-10C	LVV03-SD563-00-10C 09/08/10
Order: Arcoida	March 9464 9855 984 5750 78345 TEXTER OF HOME BY THE PARTY.			THE CONTROL OF THE SECOND CONTROL OF THE SEC	aganggayan minda Serim Delah S
Family: Arcidae					
Anadara transversa		-	_	•	-
Order: Mytiloida					
Family: Mytilidae					
Amygdalum papyrium		_	_	_	_
Order: Ostreoida				i ! !	
Family: Anomiidae					
Anomia simplex		_	<u>-</u>	-	_
Order: Ostreoida		5 5			
Family: Anomiidae				t }	
Pododesmus rudis		-	-	<u>-</u>	-
Order: Ostreoida					
Family: Ostreidae					
Crassostrea virginica		_	_	<u>-</u>	_
Order: Pholadomyoida					
Family: Lyonsiidae				1	
Lyonsia hyalina		-	-	_	_
Order: Veneroida					
Family: Mactridae					
Mactridae (LPIL)		-	-	-	-
Mulinia lateralis		<u> </u>	_	-	-
Mulinia lateralis		-	_	_	-
Family: Petricolidae					
Petricolaria pholadiformis		-	-	-	-
Family: Solecurtidae				1	
Tagelus plebeius		-	-	-	-
Tagelus sp.		-	-	-	-
Family: Tellinidae		1			
Macoma tenta		-	-	-	•
Tellinidae (LPIL)		-	-	-	-
Family: Veneridae					
Gemma gemma		-	-	-	-
Order: Veneroida					
Family: Veneridae					
Mercenaria mercenaria		-	-	-	-
Order: Veneroida					
Family: Veneridae		1			
Pitar sp.		-	-	-	_
Veneridae (LPIL)		-	-	-	-
Order: Unspecified					
Family: Unspecified					
Bivalvia (LPIL)		-	-	-	-
Phylum: Phoronida					
Class: Unspecified		!		1	
Order: Unspecified					
Family: Unspecified				1	

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Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic Classification	Station Replicate Collection Date	LW03-SD558-01 LW03-SD558-01-10C 09/08/10	LW03-SD559 LW03-SD559-00-10C	LW03-SD562 LW03-SD562-00-10C	LW03-SD563 LW03-SD563-00-10C
Phoronida (LPIL)			### CONTRACTOR OF THE PROPERTY	September 2000 control of the contro	STEEN AND THE STEEL OF THE THEORY CONTRACTOR CONTRACTOR AND THE STEEL CONTRACTOR CONTRAC
Phylum: Echinodermata					
Class: Ophiuroidea					
Order: Unspecified					
Family: Unspecified				Andrew and the second s	
Ophiuroidea (LPIL)		-	-	-	-
Phylum: Chordata					
Class: Cephalochordata				; ;	
Order: Amphioxiformes					
Family: Branchiostomatidae	•				
Branchiostoma sp.		-	-	-	-
No Organisms Present		-	-	-	✓
Total Organisms		43	57	14	14
Total Taxa		3	4	1	N/A



Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station	LW03-SD564	LW03-SD567	LW03-SD571	LW03-SD574
Classification	Collection Date	LW03-SD564-00-10C 09/08/10	09/08/10	LW03-SD571-00-10C 09/08/10	LW03-SD574-00-10C 08/31/10
Phylum: Porifera	n en meneral meneral de meneral en meneral en meneral en meneral en de en meneral en de de de de de de de de d La companya de la companya de la companya de la companya de la companya de la companya de la companya de la co		SI KANIN SISSAN 1600-CASSAS ANGAN PANTIN KANING MANING PANTAN SISSAN SISSAN SISSAN SISSAN SISSAN SISSAN SISSAN	да кашинден жүн кен кайын майштайы кетте ашашта какан кекен кайын кайын кайын, кылдорунун ууруу д	gelfist (ACE n. scokez) u satolou iz v su soom een scokeddedern terebrik eldet Gelfisk (ACE n. se seezen.
Class: Unspecified					***************************************
Order: Unspecified					
Family: Unspecified					
Porifera (LPIL)		-	-	-	-
Phylum: Cnidaria					
Class: Hydrozoa					
Order: Unspecified					
Family: Unspecified					
Hydrozoa (LPIL)		-	-	-	_
Class: Anthozoa					***************************************
Order: Actiniaria					
Family: Unspecified					
Actiniaria (LPIL)		_	-	-	-
Actiniaria sp. A		-	-	-	•
Order: Unspecified					Addition
Family: Unspecified					Addition appears to
Anthozoa (LPIL)		-	- -	-	_
Phylum: Nemertea				n III	
Class: Unspecified					
Order: Unspecified					
Family: Unspecified					0.70
Nemertea (LPIL)		<u>-</u>	-	-	_
Nemertea sp. A (LPIL)		-	=	-	_
Nemertea sp. B (LPIL)		<del>-</del>	•	-	
Nemertea sp. C (LPIL)		-	-	<u>-</u>	-
Nemertea sp. D (LPIL)		=	-		-
Phylum: Annelida					
Class: Polychaeta					de-
Order: Aciculata					
Family: Dorvilleidae					
Dorvillea (Schistomeringos) ru	dolphi	<u>-</u>	-	-	-
Dorvilleidae (LPIL)	•	-		-	_
Family: Eunicidae					
Marphysa sanguinea		_	<u>.</u>	-	-
Family: Glyceridae					4
Glycera americana		-	-	-	-
Glycera dibranchiata		-	-	- -	_
Glycera sp.		-	<u>-</u>	-	-
Ophioglycera sp.		-	-	. <del>-</del>	_
Family: Goniadidae				1 1 1	
Glycinde solitaria		-	-		-
Family: Hesionidae					
Gyptis crypta		-	-	-	-
Hesionidae (LPIL)			-	-	_
Podarke obscura			-	-	-
Family: Nereididae					

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#### **Macroinvertebrate Results Data Per Square Meter (Unpooled)**

Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept

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Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic Classification	Station Replicate Collection Date	LW03-SD564 LW03-SD564-00-10C	LW03-SD567 LW03-SD567-00-10C	LW03-SD571 LW03-SD571-00-10C	LW03-SD574 LW03-SD574-00-10C
Laeonereis culveri	er anni action de cière de l'avent in merchinism palma metalli intidi				
Neanthes succinea		_	_	_	_
		_	_	_	_
Nereididae (LPIL)		_	_	-	
Platynereis dumerilii		_	_	_	-
Family: Oenonidae					
Drilonereis Ionga		-	-	-	-
Family: Onuphidae					
Diopatra cuprea		- - !	-	· -	-
Family: Phyllodocidae					Tables Colonia
Eteone sp.		- -	-	-	-
Eumida sanguinea		- !	-	-	-
Phyllodoce mucosa		-	-	<b>-</b>	-
Phyllodocidae (LPIL)		-	-	· ·	-
Family: Polynoidae				1	
Lepidonotus sp.		-	-	-	-
Family: Syllidae		; [			
Grubeosyllis clavata		=	-	-	-
Syllidae (LPIL)		<del>-</del>	-	-	-
Order: Canalipalpata					
Family: Ampharetidae					
Ampharetidae (LPIL)		-	-	-	-
Family: Chaetopteridae				1	
Spiochaetopterus costarum		<del>-</del>	-	-	-
Family: Cirratulidae					
Aphelochaeta sp.		-	-	<u>.</u>	-
Cirratulidae (LPIL)		-	-	-	. •
Tharyx sp.		-	-	-	-
Family: Pectinariidae				1	
Pectinaria gouldii		-	-	-	-
Pectinaria sp.		-	-	-	-
Family: Sabellidae					
Demonax microphthalmus		-	-	-	-
Sabellaria vulgaris		-	-	-	-
Sabellidae (LPIL)		-	-	-	-
Sabellinae (LPIL)		-	-	-	-
Family: Serpulidae				1	
Hydroides dianthus		-	-	-	-
Family: Serpulidae					
Hydroides diathus		-	-	-	-
Family: Serpulidae				4	
Hydroides sp.		<u>-</u>	-	-	-
Serpulidae (LPIL)		-	-	-	-
Family: Spionidae		1			
Apoprionospio pygmaea		-	-	-	-
Dipolydora cauleri		-	-	-	-
Dipolydora socialis		<u>-</u>	-	-	-
Marenzelleria viridis		-	-		-

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Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

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Taxonomic Classification	Station Replicate Collection Date	LW03-SD564 LW03-SD564-00-10C 09/08/10	LW03-SD567 LW03-SD567-00-10C	LW03-SD571 LW03-SD571-00-10C 09/08/10	LW03-SD574 LW03-SD574-00-10C 08/31/10
Minuspio sp.		— The state of the		——————————————————————————————————————	
Paraprionospio pinnata		-	-	-	-
Polydora cornuta		-	-	-	-
Pseudopolydora sp.		-	-	-	-
Scolelepis texana		-	-	-	-
Spio sp.		-	-	-	-
Spionidae (LPIL)		-	-	-	-
Streblospio benedicti		-	-	-	-
Family: Terebellidae					
Loimia medusa		-	-	-	-
Loimia sp.		-	-	-	-
Pista cristata		-		-	-
Terebellidae (LPIL)		-	-	-	-
Order: Capitellida					
Family: Capitellidae		1			
Capitella capitata complex Blake		-	-	-	-
Capitella jonesi		-	-	-	-
Capitella sp.		-	-	-	-
Capitellidae (LPIL)		-	-	-	-
Heteromastus filiformis		-	-	-	-
Mediomastus ambiseta		-	-	-	-
Mediomastus californiensis		-	-	-	-
Mediomastus sp.		-	-	_	-
Order: Orbiniida					
Family: Orbiniidae					
Leitoscoloplos fragilis		-	-	-	-
Leitoscoloplos sp.		-	-	-	-
Orbiniidae (LPIL)		-	-	-	-
Scolopios rubra		-	-	-	-
Order: Phyllodocida					
Family: Pilargidae					
Sigambra tentaculata		-	-	-	-
Order: Unspecified					
Family: Maldanidae					
Clymenella torquata		-	-	<u>-</u>	-
Class: Clitellata					
Order: Haplotaxida					
Family: Naididae					A 100 T 1 A 100
Paranais frici		-	-	-	-
Family: Tubificoid Naididae	// DU \				
Tubificoid Naididae imm. w/o hair	setae (LPIL)	<del>-</del>	-	-	-
Tubificoides sp.		-	•	-	-
Phylum: Arthropoda					
Class: Malacostraca		4			
Order: Amphipoda				1	
Family: Aoridae					
Aoridae (LPIL)		· -	-	· -	-

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axonomic Classification	Station Replicate Collection Date	LW03-SD564 LW03-SD564-00-10C	LW03-SD567 LW03-SD567-00-10C		
	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	WE THE THE THE THE THE THE THE THE THE TH	09/08/10	09/08/10	08/31/10
Family: Corophildae					
Monocorophium acherusicum		-	-	-	-
Monocorophium insidiosum		-	-	-	-
Monocorophium sp.		-	-	_	-
Family: Liljeborgiidae		1			
Listriella clymenellae		-	-	-	-
Order: Cumacea					
Family: Bodotriidae					
Cyclaspis varians		-	-	-	-
Family: Leuconidae					
Leucon americanus		-	-	-	-
Family: Unspecified					
Cumacea (LPIL)		-	-	-	-
Order: Decapoda					
Family: Alpheidae					
Alpheus sp.		-	-	-	-
Family: Palaemonidae					
Palaemonetes sp.		-	-	-	-
Family: Panopeidae					
Panopeidae (LPIL)		-	-	-	_
Panopeus herbstii		- -	-	-	-
Rhithropanopeus harrisii		-	-	_	_
Family: Pinnotheridae					
Pinnixa sp.		-	-	_	<u>-</u>
Family: Portunidae					
Callinectes sp.		_	<u>-</u>	_	_
Portunidae (LPIL)		-	_	_	
Family: Unspecified					-
Decapoda (LPIL)		_	_	_	
Decapoda (zoea)		_		_	-
Decapoda <i>(20ea)</i> Decapoda zoea (larva)			-	-	-
Order: Isopoda		_	-	-	-
Family: Idoteidae					
Edotia triloba					
Order: Leptostraca		-	-	-	-
Family: Unspecified					
-					
Leptostraca (LPIL)		-	-	<del>-</del>	-
Order: Mysida					
Family: Mysidae					
Americamysis bigelowi		<u>.</u>	-	-	-
Americamysis sp.		14	-	-	-
Mysidae (LPIL)		<u>-</u>	-		-
Neomysis americana		14	-	<del>-</del>	-
Family: Unspecified					
Mysidacea (LPIL)		<u>-</u>	-	-	-
Order: Stomatopoda					
Family: Squillidae					

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Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

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Taxonomic Classification	Station Replicate Collection Date	LW03-SD564 LW03-SD564-00-10C	LW03-SD567 LW03-SD567-00-10C	LW03-SD571 LW03-SD571-00-10C 09/08/10	LW03-SD574 LW03-SD574-00-100 08/31/10
Squilla empusa	elitaisiansen koksisten 11.1607. ja on organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma in organisma 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of the St. of the St. of the St. of the St. of the St. of the St. of the St. of the St. of the St. of the		Self Self-referent Resident of the Control of Self-reference in Control of Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-reference of the Self-referenc	
Class: Maxillopoda					And the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s
Order: Sessilia		) 1			
Family: Balanoidea					
Balanus improvisus		-	-	-	-
Family: Balanomorpha					
Balanomorpha (LPIL)		-	-	-	-
Class: Entognatha					2-10-
Order: Collembola					an occurrence
Family: Unspecified				The state of	
Collembola (LPIL)		-	-	-	-
Class: Unspecified		•			The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s
Order: Unspecified					The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s
Family: Unspecified					
Crustacea (LPIL)		-	-	-	-
Phylum: Mollusca			An any and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second a second and a second and a second and a second and a second an		
Class: Gastropoda					
Order: Cephalaspidea		İ			
Family: Cylichnidae					
Acteocina canaliculata		=	-	-	-
Acteocina sp.		-	-	-	-
Order: Heterostropha					
Family: Pyramidellidae				1	
Odostomia engonia		-	-	<u>-</u>	-
Order: Heterostropha					
Family: Pyramidellidae					
Turbonilla interrupta		- -	-	-	_
Order: Neogastropoda				· i	
Family: Columbellidae					
Astyris lunata		-	-	-	-
Nassarius vibex		-	-	-	-
Family: Conidae					
Pyrgocythara plicosa		=	-	-	-
Order: Neotaenioglossa				:	
Family: Calyptraeidae					
Crepidula fornicata		-	-	-	-
Crepidula plana		-	-		-
Order: Neotaenioglossa				1	
Family: Cerithiopsidae				1	
Cerithiopsis greenii			-	-	-
Order: Neotaenioglossa					
Family: Epitoniidae		1			
Epitonium rupicola		-	-	-	-
Order: Unspecified					
Family: Unspecified					
Gastropoda (LPIL)		-	-	· ·	-
Class: Bivalvia					

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## Macroinvertebrate Results Data Per Square Meter (Unpooled)

Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic Classification	Station Replicate Collection Date	LW03-SD564 LW03-SD564-00-10C	LW03-SD567 LW03-SD567-00-10C	LW03-SD571 LW03-SD571-00-10C	LW03-SD574 LW03-SD574-00-10C
Order: Arcoida	NOON THE REPORT OF THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE 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the first section of the first section of the first section of the first section of the first section of the first	pura de como esta como esta como entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre 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entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre entre ent	O PART THE PERSONAL AND AND AND AND AND AND AND AND AND AND	ententi determini i i successiva massoci medicad hideri. Antorrot vi Artenti vi necessiva successiva c
Family: Arcidae					
Anadara transversa		-	-	-	-
Order: Mytiloida					
Family: Mytilidae		Topological and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second sec			
Amygdalum papyrium		-	_	_	-
Order: Ostreoida		1		4 4 1 1 1 1 1 1 1 1 1 1 1 1	
Family: Anomiidae					november of the
Anomia simplex		-	-	-	-
Order: Ostreoida					
Family: Anomiidae		1			
Pododesmus rudis		-	-	-	-
Order: Ostreoida					
Family: Ostreidae					
Crassostrea virginica		-	-	-	-
Order: Pholadomyoida					
Family: Lyonsiidae  Lyonsia hyalina		_	_	_	_
Order: Veneroida		1	_	1	-
Family: Mactridae		1			
Mactridae (LPIL)		<u>-</u>	_	-	_
Mulinia lateralis		-	_	_	_
Mulinia lateralis		<u>-</u>	_	_	_
Family: Petricolidae					for the second
Petricolaria pholadiformis		-	-	-	-
Family: Solecurtidae					
Tagelus plebeius		-	-	-	-
Tagelus sp.		-	-	-	-
Family: Tellinidae					
Macoma tenta		-	-	-	-
Tellinidae (LPIL)		-	-	-	-
Family: Veneridae		1		9 10 10 10 10 10 10 10 10 10 10 10 10 10	
Gemma gemma		-	-	-	-
Order: Veneroida					
Family: Veneridae  Mercenaria mercenaria					
Order: Veneroida		-	_	-	-
Family: Veneridae					
Pitar sp.		_	-	-	-
Veneridae (LPIL)		<u>-</u>	_	-	-
Order: Unspecified					
Family: Unspecified					
Bivalvia (LPIL)		-	-	-	-
Phylum: Phoronida					
Class: Unspecified				!	
Order: Unspecified					
Family: Unspecified		1	\ 		

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Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept 2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

6821 SW Archer Road Gainesville, FL 32608 www.waterandair.com

Taxonomic Classification	Station Replicate Collection Date	LW03-SD564 LW03-SD564-00-10C	LW03-SD567 LW03-SD567-00-10C	LW03-SD571 LW03-SD571-00-10C	LW03-SD574 LW03-SD574-00-10C 08/31/10
Phoronida (LPIL)	224   13 BM of 8 90 90 000 000 000 000 000 000 000 000		Totalis contras Como a visco molecular e senso e se se se se se se se se se se se se s		
Phylum: Echinodermata					
Class: Ophiuroidea					
Order: Unspecified					
Family: Unspecified					
Ophiuroidea (LPIL)			-	-	-
Phylum: Chordata					
Class: Cephalochordata					
Order: Amphioxiformes					
Family: Branchiostomatidae	е				
Branchiostoma sp.		-	-	-	-
No Organisms Present		-	✓	✓	✓
Total Organisms		29	14	14	14
Total Taxa		2	N/A	N/A	N/A



Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic Sta Repli Classification Collection 1		LW07-B7-SD401 LW07-B7- SD401-00-10C	LW07-D5-SD401 LW07-D5- SD401-00-10C	LW07-F3-SD401 LW07-F3- SD401-00-10C
Phylum: Porifera	ett 1999-tampatalpatalpatasea seinek atautatain siinet koheren kennet alkatelik talket 1994-tampen johnetin, saasian		OJ/11/10	03/11/10
Class: Unspecified				
Order: Unspecified				
Family: Unspecified				
Porifera (LPIL)	-	-	14	-
Phylum: Cnidaria				
Class: Hydrozoa				
Order: Unspecified	\$ \$			
Family: Unspecified				
Hydrozoa (LPIL)	-	-	-	-
Class: Anthozoa				
Order: Actiniaria				
Family: Unspecified				
Actiniaria (LPIL)	-	14	<u>-</u>	-
Actiniaria sp. A	•	-	=	-
Order: Unspecified				
Family: Unspecified				
Anthozoa (LPIL)	-	57	<u>-</u>	-
hylum: Nemertea				
Class: Unspecified				
Order: Unspecified				
Family: Unspecified				
Nemertea (LPIL)	14	14	-	14
Nemertea sp. A (LPIL)	29	-	14	-
Nemertea sp. B (LPIL)	14	-	-	29
Nemertea sp. C (LPIL)	-	-	-	-
Nemertea sp. D (LPIL)	•	-	-	14
Phylum: Annelida				
Class: Polychaeta				
Order: Aciculata	i			
Family: Dorvilleidae				
Dorvillea (Schistomeringos) rudolphi	-	216	_	_
Dorvilleidae (LPIL)	· -	29	-	-
Family: Eunicidae				
Marphysa sanguinea	-	-	-	_
Family: Glyceridae	1			
Glycera americana	-	14	-	14
Glycera dibranchiata	-	_	-	_
Glycera sp.	-	14	<del></del>	-
Ophioglycera sp.	-	_	-	-
Family: Goniadidae	, 1			
Glycinde solitaria	43	43	14	14
Family: Hesionidae				
Gyptis crypta		43	-	14
Hesionidae (LPIL)	<u>-</u>	-	_	-
Podarke obscura	: •	417	: : =	-
Family: Nereididae				

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Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

axonomic lassification	Station Replicate Collection Date	LW07-B5-SD401 LW07-B5- SD401-00-10C	LW07-B7-SD401 LW07-B7- SD401-00-10C	LW07-D5-SD401 LW07-D5- SD401-00-10C	LW07-F3-SD40 LW07-F3- SD401-00-100
		09/12/10	09/12/10	09/11/10	09/11/10
Laeonereis culveri		-	-	-	-
Neanthes succinea		=	29	-	-
Nereididae (LPIL)	ì	-	29	-	-
Platynereis dumerilii	į.	-	129	-	14
Family: Oenonidae					
Drilonereis longa		-	-	-	-
Family: Onuphidae			Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of the Commence of th		
Diopatra cuprea		-	-	-	-
Family: Phyllodocidae	1				
Eteone sp.		-	-	-	-
Eumida sanguinea	i j	-	14	-	_
Phyllodoce mucosa		=	•	-	-
Phyllodocidae (LPIL)		-	_	-	-
Family: Polynoidae	}				
Lepidonotus sp.		-	14	-	-
Family: Syllidae	3				
Grubeosyllis clavata		-	57	_	-
Syllidae (LPIL)		_		_	_
Order: Canalipalpata					
Family: Ampharetidae					
Ampharetidae (LPIL)	į	_	-		
Family: Chaetopteridae	AWIE	-	-	-	-
		14	29		4.4
Spiochaetopterus costarum		14	29	-	14
Family: Cirratulidae					
Aphelochaeta sp.		-	-	-	<u>-</u>
Cirratulidae (LPIL)		101	57	-	129
Tharyx sp.	1	43	29	43	129
Family: Pectinariidae			_		
Pectinaria gouldii	1	-	29	-	-
Pectinaria sp.	İ	-	-	-	-
Family: Sabellidae	İ				
Demonax microphthalmus		-	43	-	-
Sabellaria vulgaris		-	14	-	-
Sabellidae (LPIL)		-	29	-	-
Sabellinae (LPIL)		-	-	-	-
Family: Serpulidae					
Hydroides dianthus		-	517	-	-
Family: Serpulidae					
Hydroides diathus		-	-	-	-
Family: Serpulidae	į				
Hydroides sp.		-	144	-	_
Serpulidae (LPIL)		-	_	-	-
Family: Spionidae					
Apoprionospio pygmaea	(	-	_	-	_
Dipolydora cauleri	(	-	14		_
Dipolydora socialis		_	14		-
Marenzelleria viridis		_	'7	*	•

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### Macroinvertebrate Results Data Per Square Meter (Unpooled)

Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

2010

Taxonomic Station	SD401 00 10C	LW07-B7-SD401 LW07-B7- SD401-00-10C	LW07-D5-SD401 LW07-D5- SD401-00-10C	LW07-F3-SD401 LW07-F3- SD401-00-10C
Classification Collection Date	09/12/10	09/12/10	09/11/10	09/11/10
Minuspio sp.	-	14		
Paraprionospio pinnata	201	158	86	57
Polydora cornuta	29	-	-	-
Pseudopolydora sp.	-	-	-	-
Scolelepis texana	-	-	-	_
Spio sp.	-	-	-	-
Spionidae (LPIL)	-	-		_
Streblospio benedicti	-	14	-	72
Family: Terebellidae				
Loimia medusa	43	14	-	43
Loimia sp.	14	-	-	-
Pista cristata	-	-	-	_
Terebellidae (LPIL)	-	14	-	-
Order: Capitellida				
Family: Capitellidae				
Capitella capitata complex Blake	-	-	-	-
Capitella jonesi	-	14	-	_
Capitella sp.	-	-	_	_
Capitellidae (LPIL)	-	_		_
Heteromastus filiformis	14	-	_	
Mediomastus ambiseta	-	259		29
Mediomastus californiensis	_	158	_	_
Mediomastus sp.	14	675	14	-
Order: Orbiniida			• •	
Family: Orbiniidae				
Leitoscoloplos fragilis	14	14	-	_
Leitoscoloplos sp.	_	_	_	
Orbiniidae (LPIL)	_	_	_	- I
Scoloplos rubra	_	_	_	design of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the se
Order: Phyllodocida				Table of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state
Family: Pilargidae				Linear Property
Sigambra tentaculata	29	14	14	And the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s
Order: Unspecified		• •	, '-	-
Family: Maldanidae				
Clymenella torquata	-	_	_	
Class: Clitellata				-
Order: Haplotaxida				4400
Family: Naididae				
Paranais frici	-	_	_	approximate and go
Family: Tubificoid Naididae			and the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of th	_
Tubificoid Naididae imm. w/o hair setae (LPIL)	-	86	_	14
Tubificoides sp.	-	86	_	<b>  14</b>
Phylum: Arthropoda				-
Class: Malacostraca		5 B		
Order: Amphipoda				
Family: Aoridae				
Aoridae (LPIL)	} -	_		

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Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station Replicate	LW07-B5-SD401 LW07-B5- SD401-00-10C	LW07-B7-SD401 LW07-B7- SD401-00-10C	LW07-D5-SD401 LW07-D5- SD401-00-10C	LW07-F3-SD401 LW07-F3- SD401-00-10C
Classification	Collection Date	09/12/10	09/12/10	09/11/10	09/11/10
Family: Corophiidae			of A CHEAN AND AND THE COLUMNISM STREET STREET COMPANIES AND COLOR OF A FIRST AND AND AND AND AND AND AND AND AND AND	Professional Alexandria (Alexandria de Santal America (Alexandria de Antonio Alexandria) (Alexandria (Alexandria de Antonio Alexandria (Alexandria de Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio Antonio	CONTROL PROGRAMMENT CONTROL PROGRAMMENT AND CONTROL PROGRAMMENT CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTROL CONTRO
Monocorophium acherusicum		-	-	-	-
Monocorophium insidiosum		-	-	<u>-</u>	-
Monocorophium sp.		-	_	-	-
Family: Liljeborgiidae					
Listriella clymenellae		-	_	-	-
Order: Cumacea					
Family: Bodotriidae	į				
Cyclaspis varians		-	-	-	-
Family: Leuconidae					
Leucon americanus		-	-	-	14
Family: Unspecified					
Cumacea (LPIL)		-	-	-	-
Order: Decapoda			A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AND A PARAMETER AN		
Family: Alpheidae					
Alpheus sp.		-	<u>-</u>	-	-
Family: Palaemonidae	1				
Palaemonetes sp.		-	-		_
Family: Panopeidae					
Panopeidae (LPIL)		-	29	-	-
Panopeus herbstii	!	-	-	-	-
Rhithropanopeus harrisii		-	_		-
Family: Pinnotheridae			To the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second se		
Pinnixa sp.	;	-	-	-	-
Family: Portunidae	1				
Callinectes sp.		-	-	•	-
Portunidae (LPIL)		-	-	-	-
Family: Unspecified					
Decapoda (LPIL)		-	-	-	-
Decapoda (zoea)		-	-	-	-
Decapoda zoea (larva)	i	-	-	-	-
Order: Isopoda					
Family: Idoteidae					
Edotia triloba	4	-	<u>-</u>	-	-
Order: Leptostraca					
Family: Unspecified	1				
Leptostraca (LPIL)		-	-	-	-
Order: Mysida					
Family: Mysidae	Í				
Americamysis bigelowi		-	-	-	-
Americamysis sp.	1	-	-	-	-
Mysidae (LPIL)		-	-	-	-
Neomysis americana		-	-	-	-
Family: Unspecified					
Mysidacea (LPIL)		-	-	-	-
Order: Stomatopoda					
Family: Squillidae					

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Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept 2010 Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

6821 SW Archer Road Gainesville, FL 32608 www.waterandair.com

Taxonomic	Station Replicate	LW07-B5-SD401 LW07-B5- SD401-00-10C	LW07-B7-SD401 LW07-B7- SD401-00-10C	LW07-D5-SD401 LW07-D5-	LW07-F3-SD401 LW07-F3-
Classification	Collection Date	09/12/10	09/12/10	SD401-00-10C	SD401-00-10C 09/11/10
Squilla empusa	NTS-2009 (independence of the Furnishment and matter of the second state of the second state of the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second	- Committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the committee of the comm			
Class: Maxillopoda					
Order: Sessilia	:				
Family: Balanoidea	:				
Balanus improvisus		-	-	-	-
Family: Balanomorpha	-				
Balanomorpha (LPIL)	3	-	-	-	<u>-</u>
Class: Entognatha					
Order: Collembola					
Family: Unspecified			Michael Barriage		
Collembola (LPIL)	P = 2	-	-	14	-
Class: Unspecified	•				
Order: Unspecified					
Family: Unspecified					
Crustacea (LPIL)		-	-	-	<u>-</u>
Phylum: Mollusca	1				
Class: Gastropoda					
Order: Cephalaspidea					
Family: Cylichnidae					
Acteocina canaliculata		302	101	-	287
Acteocina sp.		-	-	-	<u>-</u>
Order: Heterostropha	337				
Family: Pyramidellidae	The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s				
Odostomia engonia		14	-	14	-
Order: Heterostropha	-				
Family: Pyramidellidae					
Turbonilla interrupta	1	-	-	-	-
Order: Neogastropoda					
Family: Columbellidae	1		The second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second secon		
Astyris lunata	\$ \$	-	-	-	-
Nassarius vibex	1	-	-	-	-
Family: Conidae	į				
Pyrgocythara plicosa	1	-	-	-	-
Order: Neotaenioglossa					
Family: Calyptraeidae	<b>8</b> 1				
Crepidula fornicata		43	259	-	-
Crepidula plana		14	14	-	-
Order: Neotaenioglossa					
Family: Cerithiopsidae	1				
Cerithiopsis greenii	i i	-	-	-	-
Order: Neotaenioglossa	1				
Family: Epitoniidae	1			:	
Epitonium rupicola		-	-	-	-
Order: Unspecified					
Family: Unspecified					
Gastropoda (LPIL)		29	29	-	-
Class: Bivalvia			1		

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Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station Replicate	LW07-B5-SD401 LW07-B5-	LW07-B7-SD401 LW07-B7-	LW07-D5-SD401 LW07-D5-	LW07-F3-SD401 LW07-F3-
Classification	Collection Date	SD401-00-10C 09/12/10	SD401-00-10C 09/12/10	SD401-00-10C	SD401-00-10C 09/11/10
Order: Arcoida				of each life work are the cold and are to process to the cold and are to the cold and are to the cold and are to	
Family: Arcidae					
Anadara transversa		-	43	-	-
Order: Mytiloida					
Family: Mytilidae					TALL STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE
Amygdalum papyrium	1	-	-	-	Et s
Order: Ostreoida					- Proposition of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the
Family: Anomiidae					
Anomia simplex	į	-	201	-	-
Order: Ostreoida					
Family: Anomiidae					
Pododesmus rudis		-	-	-	-
Order: Ostreoida					
Family: Ostreidae					
Crassostrea virginica		-	-	-	-
Order: Pholadomyoida					
Family: Lyonsiidae					
Lyonsia hyalina		14	-	-	-
Order: Veneroida					
Family: Mactridae					
Mactridae (LPIL)		-	-	-	43
Mulinia lateralis		-	-	-	-
Mulinia lateralis		-	-	-	-
Family: Petricolidae					
Petricolaria pholadiformis		14	-	-	-
Family: Solecurtidae					
Tagelus plebeius		-	-	-	-
Tagelus sp.		-	-	-	-
Family: Tellinidae					
Macoma tenta		•	-	-	-
Tellinidae (LPIL)		-	-	-	<del>-</del>
Family: Veneridae					
Gemma gemma		-	-	-	14
Order: Veneroida					
Family: Veneridae					
Mercenaria mercenaria		-	-	-	-
Order: Veneroida					
Family: Veneridae				1	
Pitar sp.			-	-	-
Veneridae (LPIL)		72	172	-	-
Order: Unspecified					
Family: Unspecified		4.5			
Bivalvia (LPIL)		43	14	-	-
Phylum: Phoronida					
Class: Unspecified				1	
Order: Unspecified					
Family: Unspecified				1 3	

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Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

2010

Taxonomic Classification	Station Replicate Collection Date	LW07-B5-SD401 LW07-B5- SD401-00-10C 09/12/10	LW07-B7-SD401 LW07-B7- SD401-00-10C	LW07-D5-SD401 LW07-D5- SD401-00-10C	LW07-F3-SD401 LW07-F3- SD401-00-10C
Phoronida (LPIL)	Por an Are de la consumeración de Esta de Consumera are consenta en constituido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Consentido de Con	359	115		72
Phylum: Echinodermata					
Class: Ophiuroidea					
Order: Unspecified			4.		
Family: Unspecified					
Ophiuroidea (LPIL)	:	-	-	-	-
Phylum: Chordata					
Class: Cephalochordata	i				
Order: Amphioxiformes					
Family: Branchiostomatidae	)				
Branchiostoma sp.		•	-	-	-
No Organisms Present		-	-	-	-
Total Organisms		1523	4555	230	1034
Total Taxa	l	25	50	9	20



Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station Replicate	LW07-F5-SD401 LW07-F5- SD401-00-10C	LW07-H3-SD401 LW07-H3- SD401-00-10C	LW07-J4-SD401 LW07-J4- SD401-00-10C	LW07-K3-SD401 LW07-K3- SD401-00-10C
Classification	Collection Date	09/11/10	09/11/10	09/11/10	09/11/10
Phylum: Porifera					ed, fra Hellina alaktronoldis helmissi sisseinemiseinemiseinemiseinemiseinemiseinemiseinemiseinemiseinemiseine In Hellina alaktronoldis helmissi sisseinemiseinemiseinemiseinemiseinemiseinemiseinemiseinemiseinemiseinemisei
Class: Unspecified	***************************************			<u> </u>	
Order: Unspecified				And the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s	
Family: Unspecified					
Porifera (LPIL)		<del>-</del>	-	-	-
Phylum: Cnidaria					
Class: Hydrozoa					
Order: Unspecified	1				
Family: Unspecified	3 1			1	
Hydrozoa (LPIL)	ļ	<del>-</del>	-	-	-
Class: Anthozoa					
Order: Actiniaria					
Family: Unspecified					
Actiniaria (LPIL)		-	-	-	-
Actiniaria sp. A		-	-	-	-
Order: Unspecified					
Family: Unspecified					
Anthozoa (LPIL)		-	-	-	-
Phylum: Nemertea					
Class: Unspecified					
Order: Unspecified					
Family: Unspecified					
Nemertea (LPIL)		72	-	-	14
Nemertea sp. A (LPIL)		-	-	-	-
Nemertea sp. B (LPIL)		-	-	-	-
Nemertea sp. C (LPIL)		14	-	-	-
Nemertea sp. D (LPIL)		-	-	-	-
Phylum: Annelida				1	
Class: Polychaeta				1	
Order: Aciculata					
Family: Dorvilleidae					
Dorvillea (Schistomeringos) re	udolphi	14	-	-	-
Dorvilleidae (LPIL)		-	-	-	-
Family: Eunicidae			- wooding		
Marphysa sanguinea		-	-	-	-
Family: Glyceridae					
Glycera americana		-	-	-	-
Glycera dibranchiata		-	-	-	-
Glycera sp.		-	-	-	-
Ophioglycera sp.		-	-	-	-
Family: Goniadidae				1	
Glycinde solitaria		43	29	14	14
Family: Hesionidae		•		:	
Gyptis crypta		-	-	-	-
Hesionidae (LPIL)		-	-	-	-
Podarke obscura		29	-	29	-
Family: Nereididae			- Taranta	i .	

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## Macroinvertebrate Results Data Per Square Meter (Unpooled)

Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic Classification	Station Replicate	LW07-F5-SD401 LW07-F5- SD401-00-10C	LW07-H3-SD401 LW07-H3- SD401-00-10C	LW07-J4-SD401 LW07-J4- SD401-00-10C	LW07-K3-SD401 LW07-K3- SD401-00-10C
	Collection Date	09/11/10	09/11/10	09/11/10	09/11/10
Laeonereis culveri		-	-		-
Neanthes succinea		43	-	-	_
Nereididae (LPIL)	1	14	-		-
Platynereis dumerilii		-	-	-	-
Family: Oenonidae					mandah karayaya
Drilonereis longa		-	-	_	<u>-</u>
Family: Onuphidae					
Diopatra cuprea		-	-	-	-
Family: Phyllodocidae					
Eteone sp.	i	-	-	-	_
Eumida sanguinea		-	-	-	-
Phyllodoce mucosa		-	<u>-</u>		-
Phyllodocidae (LPIL)		-	-	-	_
Family: Polynoidae					
Lepidonotus sp.		-	-		-
Family: Syllidae	1 2 3 4 4 1				
Grubeosyllis clavata		•	-	! -	-
Syllidae (LPIL)		-	=	<u>-</u>	_
Order: Canalipalpata					
Family: Ampharetidae					
Ampharetidae (LPIL)	:	-	-	-	-
Family: Chaetopteridae	1				
Spiochaetopterus costarum	1	-	_	-	_
Family: Cirratulidae	i				
Aphelochaeta sp.	no vent pa	14	_	<u>-</u>	_
Cirratulidae (LPIL)		115	57	_	402
Tharyx sp.	1	57	_	29	72
Family: Pectinariidae					, _
Pectinaria gouldii	1	14	14	. 14	_
Pectinaria sp.		-	_	· ·	_
Family: Sabellidae				!	
Demonax microphthalmus		_	_	_	_
Sabellaria vulgaris		_	_	_	
Sabellidae (LPIL)		-	-	- -	<u>-</u> -
Sabellinae (LPIL)	and the second	_	_	-	<u>-</u>
Family: Serpulidae				-	<u>-</u>
Hydroides dianthus		14	_	_	
Family: Serpulidae	\$ 1		Action and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s	 :	-
Hydroides diathus		-	_		
Family: Serpulidae	i i			-	-
Hydroides sp.		-	_		
Serpulidae (LPIL)		· -	_	<u>-</u>	-
Family: Spionidae		•	-	-	-
Apoprionospio pygmaea	-	14			
Apoprionospio pygmaea Dipolydora cauleri		I <del>**</del>	-	-	-
Dipolydora cauleri Dipolydora socialis	1	-	-	<del>-</del>	-
Dipolydora socialis Marenzelleria viridis	1	-	-	-	-
iviai di izdherra VIIIUIS		-	-	-	-

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## Macroinvertebrate Results Data Per Square Meter (Unpooled)

Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

SD401-00-10C 09/11/10 -	SD401-00-10C 09/11/10	SD401-00-10C 09/11/10	SD401-00-10C
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-	-	-	-
-	-	-	-
-	-	-	-
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-	-	-	-
129	201	316	187
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-	-	-	-
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-	-	-	-
-	-	-	-
-	-	-	-
-	-	•	_
14	14	<del>-</del>	-
187	14	14	_
-	-	_	_
517	72	115	101
43	_	14	_
-	-	-	
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	187 - 517		

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Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept 2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station	LW07-F5-SD401 LW07-F5-	LW07-H3-SD401 LW07-H3-	LW07-J4-SD401	LW07-K3-SD401
Classification	Replicate Collection Date	SD401-00-10C	SD401-00-10C	LW07-J4- SD401-00-10C	LW07-K3- SD401-00-10C
		09/11/10	09/11/10	09/11/10	09/11/10
Family: Corophiidae					
Monocorophium acherusicum		-	-	-	-
Monocorophium insidiosum		-	-	-	-
Monocorophium sp.	1	-	-	-	-
Family: Liljeborgiidae					on a decimal of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of
Listriella clymenellae		-	-	-	-
Order: Cumacea	;				
Family: Bodotriidae	2				
Cyclaspis varians		-	-	-	-
Family: Leuconidae	1				
Leucon americanus	:	-	14	-	14
Family: Unspecified					
Cumacea (LPIL)		-	-	-	-
Order: Decapoda				TALLY YOUR BEAUTY	e e e e e e e e e e e e e e e e e e e
Family: Alpheidae					**************************************
Alpheus sp.		•	-	-	-
Family: Palaemonidae	and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s				
Palaemonetes sp.		-	-	-	-
Family: Panopeidae					
Panopeidae (LPIL)		•	-	<del>-</del>	-
Panopeus herbstii		-	-	-	-
Rhithropanopeus harrisii		-	-	-	-
Family: Pinnotheridae					To the agreement
Pinnixa sp.		•	-	-	-
Family: Portunidae					1
Callinectes sp.		-	-	-	-
Portunidae (LPIL)		-	-	-	-
Family: Unspecified					
Decapoda (LPIL)		-	-	-	-
Decapoda (zoea)	Ī	-	-	-	-
Decapoda zoea (larva)		-	-	<u>-</u>	-
Order: Isopoda	100				
Family: Idoteidae					
Edotia triloba		14	14	-	-
Order: Leptostraca					
Family: Unspecified					
Leptostraca (LPIL)		-	-	<del>-</del>	-
Order: Mysida					
Family: Mysidae					
Americamysis bigelowi		-	14	-	29
Americamysis sp.		-	-	-	-
Mysidae (LPIL)		-	-	-	-
Neomysis americana		-	-	-	-
Family: Unspecified					
Mysidacea (LPIL)		-	-	_	-
Order: Stomatopoda					
Family: Squillidae				:	

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Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

	1	LW07-F5-SD401	LW07-H3-SD401	LW07-J4-SD401	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Taxonomic	Station	LW07-F5-SD401	LW07-H3-	LW07-J4-SD401 LW07-J4-	LW07-K3-SD401 LW07-K3-
Classification	Replicate Collection Date	SD401-00-10C	SD401-00-10C	SD401-00-10C	SD401-00-10C
30000000000000000000000000000000000000	Collection Date	09/11/10	09/11/10	09/11/10	09/11/10
Squilla empusa	-	-	-	-	-
Class: Maxillopoda					
Order: Sessilia					
Family: Balanoidea					
Balanus improvisus		-	-	-	-
Family: Balanomorpha	į				TRANSPORTER TO THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF
Balanomorpha (LPIL)		-	-	-	-
Class: Entognatha	<i>i</i>				
Order: Collembola	1				
Family: Unspecified					on many
Collembola (LPIL) Class: Unspecified		-	-	-	-
Order: Unspecified	4				
Family: Unspecified					
Crustacea (LPIL)					
Phylum: Mollusca		-	_	-	•
Class: Gastropoda					distribution of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of th
Order: Cephalaspidea	en en en en en en en en en en en en en e				
Family: Cylichnidae					***************************************
Acteocina canaliculata		86	72	72	57
Acteocina sp.		-	-	-	_
Order: Heterostropha					
Family: Pyramidellidae					
Odostomia engonia		14	29	14	-
Order: Heterostropha					
Family: Pyramidellidae					
Turbonilla interrupta	NO PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY AND PERSONAL PROPERTY PROPERTY AND PERSONAL PROPERTY PROPERTY AND PERSONAL PROPERTY PROPERTY PROPERTY PROPERTY PROPERTY PROPERTY PROP	14	-	-	-
Order: Neogastropoda					
Family: Columbellidae	:				
Astyris lunata		-	-	-	-
Nassarius vibex		-	-	-	•
Family: Conidae					
Pyrgocythara plicosa		-	-	-	-
Order: Neotaenioglossa					
Family: Calyptraeidae					
Crepidula fornicata		•	-	-	
Crepidula plana		-	-	-	-
Order: Neotaenioglossa					
Family: Cerithiopsidae	1				
Cerithiopsis greenii		-	-	-	-
Order: Neotaenioglossa Family: Epitoniidae					
Epitonium rupicola	,	_	_		
Order: Unspecified		2	_	-	-
Family: Unspecified					
Gastropoda (LPIL)		_	_	_	_
Class: Bivalvia				-	-
			1		

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Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station	LW07-F5-SD401 LW07-F5-	LW07-H3-SD401 LW07-H3-	LW07-J4-SD401 LW07-J4-	LW07-K3-SD401 LW07-K3-
Classification	Replicate Collection Date	SD401-00-10C 09/11/10	SD401-00-10C	SD401-00-10C	SD401-00-10C
Order: Arcoida		re control and it to real (Colored Article) in Article (Colored Medical Medical Medical Article) and control and control and control and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and colored and c	American and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second a		
Family: Arcidae					
Anadara transversa	1	-	-	-	-
Order: Mytiloida					
Family: Mytilidae	:				
Amygdalum papyrium	1	-	<del>-</del>	-	-
Order: Ostreoida	!				1
Family: Anomiidae					
Anomia simplex		-	-	-	**
Order: Ostreoida					
Family: Anomiidae					A victorial de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina de la constantina della constantina della constantina della constantina della constantina della constantina della constantina della constantina della constantina della constantina della constantina della constantina della constantina della constantina della constantina della constantina della constantina della constantina della constantina della constantina della constantina
Pododesmus rudis	·	-	-	-	-
Order: Ostreoida					
Family: Ostreidae					
Crassostrea virginica		-	-	-	-
Order: Pholadomyoida					
Family: Lyonsiidae	}				out.
Lyonsia hyalina		-	-	-	-
Order: Veneroida					
Family: Mactridae	}				
Mactridae (LPIL)	;	14	29	-	-
Mulinia lateralis		-	-	-	-
Mulinia lateralis	1	-	-	-	-
Family: Petricolidae					
Petricolaria pholadiformis		-	-	-	-
Family: Solecurtidae	£				- A ADMINISTRA
Tagelus plebeius		-	14	-	-
Tagelus sp.		-	-	-	-
Family: Tellinidae					
Macoma tenta		-	-	-	-
Tellinidae (LPIL)		•	-	-	-
Family: Veneridae	ì				
Gemma gemma		-	-	-	-
Order: Veneroida	1		a. arministry		Andrews 44
Family: Veneridae					Name of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control o
Mercenaria mercenaria		-	-	_	•
Order: Veneroida					
Family: Veneridae					
Pitar sp.			-	-	-
Veneridae (LPIL)		29	-	14	-
Order: Unspecified					
Family: Unspecified					No. of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the con
Bivalvia (LPIL)		-	-	•	14
Phylum: Phoronida				1	+
Class: Unspecified					
Order: Unspecified					**************************************
Family: Unspecified					Vocanies.

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Prepared For: CH2M HILL Project: Navy Clean III

Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic Classification	Station Replicate Collection Date	LW07-F5-SD401 LW07-F5- SD401-00-10C 09/11/10	LW07-H3-SD401 LW07-H3- SD401-00-10C	LW07-J4-SD401 LW07-J4- SD401-00-10C	LW07-K3-SD401 LW07-K3- SD401-00-10C
Phoronida (LPIL)		172	29	43	72
Phylum: Echinodermata	ì				
Class: Ophiuroidea					sanda
Order: Unspecified	! !		To the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the		
Family: Unspecified					
Ophiuroidea (LPIL)		-	-	-	14
Phylum: Chordata					Ar empression of
Class: Cephalochordata					
Order: Amphioxiformes					
Family: Branchiostomatidae	)				
Branchiostoma sp.		-	-	-	•
No Organisms Present	and the	-	-	-	-
Total Organisms	1 abbato	1739	747	1020	1078
Total Taxa	1	27	18	15	13



Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic Station Replicate		LW07-K5-SD401 LW07-K5-	LW07-L2-SD401-01 LW07-L2-	LW07-H1-SD401-01 LW07-H1-
Classification Collection Date		SD401-00-10C 09/11/10	SD401-01-10C-01 09/11/10	SD401-00-10C-01
Phylum: Porifera	endi promoce con ceremente en consistencia de minoriale como en el como en esta en en el como en en en el como	et egyinte propinione magnetic magnet, egy egyinte da el litter kindir dir. 1820 v. 1840 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 1820 v. 18	A STREET OF THE TOTAL PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMENT OF THE PROGRAMMEN	
Class: Unspecified				
Order: Unspecified				
Family: Unspecified				
Porifera (LPIL)	_	14	_	14
Phylum: Cnidaria	1			
Class: Hydrozoa				
Order: Unspecified				
Family: Unspecified				
Hydrozoa (LPIL)	_	_	_	_
Class: Anthozoa				
Order: Actiniaria				
Family: Unspecified				
		_		
Actiniaria (LPIL)	-	-	-	_
Actiniaria sp. A	-	-	-	-
Order: Unspecified				
Family: Unspecified				
Anthozoa (LPIL)	-		-	•
Phylum: Nemertea			and a second	
Class: Unspecified				
Order: Unspecified				
Family: Unspecified		A A A A A A A A A A A A A A A A A A A		
Nemertea (LPIL)	-	-	-	-
Nemertea sp. A (LPIL)	-	-	-	-
Nemertea sp. B (LPIL)	-	-	-	-
Nemertea sp. C (LPIL)	-	-	-	-
Nemertea sp. D (LPIL)	-	-	-	-
Phylum: Annelida				
Class: Polychaeta				
Order: Aciculata				
Family: Dorvilleidae	i I			1
Dorvillea (Schistomeringos) rudolphi	-	-	•	-
Dorvilleidae (LPIL)	· -	_	-	-
Family: Eunicidae		adolesis esta de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante de la constante		
Marphysa sanguinea	_	-	-	-
Family: Glyceridae	1			
Glycera americana	_	_	-	-
Glycera dibranchiata	-	_	_	-
O.	-	-	-	
Glycera sp. Ophioglycera sp.	_	-	-	_
Family: Goniadidae				
Glycinde solitaria	14	14	_	_
Family: Hesionidae	1-7	17	_	-
	:	29		
Gyptis crypta	-	25	_	
Hesionidae (LPIL)	-	-	-	-
Podarke obscura	•	-	-	- -
Family: Nereididae		1	1	

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Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic Classification	Station Replicate Collection Date	LW07-K4-SD401 LW07-K4- SD401-00-10C	LW07-K5-SD401 LW07-K5- SD401-00-10C	LW07-L2-SD401-01 LW07-L2- SD401-01-10C-01	LW07-H1-SD401-01 LW07-H1- SD401-00-10C-01
		09/11/10	09/11/10	09/11/10	09/10/10
Laeonereis culveri	h	-	-	-	-
Neanthes succinea		-	-	-	-
Nereididae (LPIL)	1	-	-	-	-
Platynereis dumerilii	1	-	-	-	
Family: Oenonidae	1		9		
Drilonereis longa		-	-	-	-
Family: Onuphidae					· Commission of
Diopatra cuprea	İ	-	-	-	-
Family: Phyllodocidae					
Eteone sp.		-	-	-	-
Eumida sanguinea		-	_	_	-
Phyllodoce mucosa		-	-	-	-
Phyllodocidae (LPIL)	ļ	-	-	_	<u>-</u>
Family: Polynoidae	Î				
Lepidonotus sp.		_	-	_	-
Family: Syllidae					
Grubeosyllis clavata		-	_	_	_
Syllidae (LPIL)			_	_	_
Order: Canalipalpata				_	_
Family: Ampharetidae	1				
Ampharetidae (LPIL)	1 1				
	Table 1	-	-	-	-
Family: Chaetopteridae			44		
Spiochaetopterus costarum	L Para	-	14	-	-
Family: Cirratulidae					
Aphelochaeta sp.		-	-	-	-
Cirratulidae (LPIL)		388	29	-	-
Tharyx sp.		201	-	14	-
Family: Pectinariidae	i				
Pectinaria gouldii		-	-	-	<u> </u>
Pectinaria sp.	· ·	-	-	-	-
Family: Sabellidae	1				a control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the cont
Demonax microphthalmus		-	-	-	-
Sabellaria vulgaris		-	-	-	-
Sabellidae (LPIL)		-	-	-	-
Sabellinae (LPIL)		-	-	-	-
Family: Serpulidae					
Hydroides dianthus		-	-	-	-
Family: Serpulidae	1				
Hydroides diathus		-	-	-	-
Family: Serpulidae					
Hydroides sp.		-	_	-	-
Serpulidae (LPIL)		-	-	-	-
Family: Spionidae					
Apoprionospio pygmaea		-	-	-	
Dipolydora cauleri		=	_	-	-
Dipolydora socialis		-	-	<u>-</u>	-
Marenzelleria viridis		_		-	; <u> </u>
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			!	ŧ	· -

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Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept 2010 Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

6821 SW Archer Road Gainesville, FL 32608 www.waterandair.com

Taxonomic Station Replicate Collection Date	LW07-K4-SD401 LW07-K4- SD401-00-10C	LW07-K5-SD401 LW07-K5- SD401-00-10C	LW07-L2-SD401-01 LW07-L2- SD401-01-10C-01	LW07-H1-SD401-01 LW07-H1- SD401-00-10C-01
Minuspio sp.	DOJ (1710	<b>3711710</b>	09/11/10	09/10/10
Paraprionospio pinnata	57	158	57	_
Polydora cornuta	_	-		_
Pseudopolydora sp.	-	_	_	_
Scolelepis texana	_	_	_	_
Spio sp.	_	-	_	_
Spionidae (LPIL)	14	_	_	-
Streblospio benedicti	29	101	57	489
Family: Terebellidae			5,	409
Loimia medusa	_	-	_	_
Loimia sp.	_	_		-
Pista cristata	_	_	_	-
Terebellidae (LPIL)	: :	_	_	-
Order: Capitellida			-	-
Family: Capitellidae				
Capitella capitata complex Blake	_	_		
Capitella jonesi	_	_	-	-
Capitella sp.		_	-	-
Capitellidae (LPIL)	1	-	-	14
Heteromastus filiformis		-	-	-
Mediomastus ambiseta	14	57	-	-
Mediomastus ambiseta Mediomastus californiensis	. 14	57	-	29
Mediomastus camorniensis Mediomastus sp.	-	43	400	-
Order: Orbiniida	: <b>-</b>	43	129	<del>-</del>
Family: Orbiniidae				
Leitoscoloplos fragilis	-	-	-	-
Leitoscoloplos sp.	•	-	-	-
Orbiniidae (LPIL)	<u>-</u>	-	-	-
Scoloplos rubra	-	-	-	-
Order: Phyllodocida			1	
Family: Pilargidae			1	
Sigambra tentaculata	29	29	14	-
Order: Unspecified				
Family: Maldanidae				
Clymenella torquata	· <u>-</u>	-	-	-
Class: Clitellata				
Order: Haplotaxida				
Family: Naididae	1 1			
Paranais frici	-	-	-	-
Family: Tubificoid Naididae				
Tubificoid Naididae imm. w/o hair setae (LPIL)	<del>-</del>	-	14	-
Tubificoides sp.		-	-	-
Phylum: Arthropoda		-		
Class: Malacostraca				
Order: Amphipoda	1			
Family: Aoridae				
Aoridae (LPIL)	· -	-	<u>-</u>	_

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Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station	LW07-K4-SD401 LW07-K4-	LW07-K5-SD401 LW07-K5-	LW07-L2-SD401-01 LW07-L2-	LW07-H1-SD401-01
Classification	Replicate Collection Date	SD401-00-10C 09/11/10	SD401-00-10C	SD401-01-10C-01	LW07-H1- SD401-00-10C-01 09/10/10
Family: Corophiidae	and the second second second second second second second second second second second second second second second	очника в в постоя по россина в нашего по в настромниции в село на нечено на почени до на в настрому на суча.	CONTRACTOR OF THE SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECTION SECT		AND TO TO
Monocorophium acherusicum		-	-	444	-
Monocorophium insidiosum		-	-	<del>-</del>	-
Monocorophium sp.		-	_	-	-
Family: Liljeborgiidae			MAA YA WAYYOO YA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA WAXAA W		
Listriella clymenellae	1	=	-	-	-
Order: Cumacea					
Family: Bodotriidae					
Cyclaspis varians		-	-	<del>-</del>	-
Family: Leuconidae					
Leucon americanus		-	14	-	-
Family: Unspecified					
Cumacea (LPIL)		-	-	-	-
Order: Decapoda					
Family: Alpheidae					
Alpheus sp.		-	-	-	-
Family: Palaemonidae					
Palaemonetes sp.	į.	-	-	-	-
Family: Panopeidae					
Panopeidae (LPIL)		-	-	-	•
Panopeus herbstii		-	-	-	-
Rhithropanopeus harrisii		-	-	-	•
Family: Pinnotheridae					
Pinnixa sp.		-	-	-	<u></u>
Family: Portunidae					
Callinectes sp.	1	-	-	-	-
Portunidae (LPIL)		-	-	-	<del>-</del>
Family: Unspecified	1				
Decapoda (LPIL)		•	-	-	-
Decapoda (zoea)		-	-	-	-
Decapoda zoea (larva) Order: Isopoda		-	-	-	-
Family: Idoteidae					
Edotia triloba					
Order: Leptostraca		-	•	_	-
Family: Unspecified					
Leptostraca (LPIL)	į.		_	_	
Order: Mysida	1			_	_
Family: Mysidae	ATT or desired		) )   		
Americamysis bigelowi	LADARNI - MI	_	14	_	_
Americamysis sp.		-	_	_	-
Mysidae (LPIL)		-	-	-	-
Neomysis americana		-	-	-	-
Family: Unspecified	tomo -				
Mysidacea (LPIL)	į.	-	-	<del>-</del>	_
Order: Stomatopoda	i				
Family: Squillidae					

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## Macroinvertebrate Results Data Per Square Meter (Unpooled)

Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

	1	LW07-K4-SD401	LW07-K5-SD401	L WOZ L 2 CD404 04	: 138/07 LM CD404 04
Taxonomic	Station	LW07-K4-SD401	LW07-K5-SD401	LW07-L2-SD401-01 LW07-L2-	LW07-H1-SD401-01 LW07-H1-
Classification	Replicate Collection Date	SD401-00-10C	SD401-00-10C	SD401-01-10C-01	SD401-00-10C-01
Squilla empusa	ORANIA MARIANA ANTANA PROPERSIA PROPERSIA PROPERSIA SANDONIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPERSIA PROPE	09/11/10	09/11/10	09/11/10	09/10/10
Class: Maxillopoda				_	-
Order: Sessilia					
Family: Balanoidea					
Balanus improvisus		_	-	-	_
Family: Balanomorpha			The Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Co		
Balanomorpha (LPIL)		-	-	-	-
Class: Entognatha					
Order: Collembola					
Family: Unspecified			I CONTRACTOR	and the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of t	
Collembola (LPIL)		-	-	-	-
Class: Unspecified	1				
Order: Unspecified					
Family: Unspecified					
Crustacea (LPIL)		-	-	-	-
Phylum: Mollusca					
Class: Gastropoda					
Order: Cephalaspidea					
Family: Cylichnidae			í Í		
Acteocina canaliculata		14	29	86	29
Acteocina sp.		-	-	-	-
Order: Heterostropha					
Family: Pyramidellidae	, I				
Odostomia engonia		=	-	-	-
Order: Heterostropha			4000		
Family: Pyramidellidae  Turbonilla interrupta			The second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second secon		
Order: Neogastropoda		-	-	-	-
Family: Columbellidae					
Astyris lunata		_	_		
Nassarius vibex		_	_		-
Family: Conidae					_
Pyrgocythara plicosa		-	-	_	_
Order: Neotaenioglossa					
Family: Calyptraeidae				Type de de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constant de la constan	
Crepidula fornicata		-	-	-	-
Crepidula plana		-	-	_	-
Order: Neotaenioglossa			1		
Family: Cerithiopsidae					
Cerithiopsis greenii		-	-	-	-
Order: Neotaenioglossa				i I	
Family: Epitoniidae					
Epitonium rupicola		-	-	-	-
Order: Unspecified					
Family: Unspecified					
Gastropoda (LPIL)	-	-	-	-	-
Class: Bivalvia				İ	

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Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station Replicate	LW07-K4-SD401 LW07-K4-	LW07-K5-SD401 LW07-K5-	LW07-L2-SD401-01 LW07-L2-	LW07-H1-SD401-01 LW07-H1-
Classification	Collection Date	SD401-00-10C 09/11/10	SD401-00-10C 09/11/10	SD401-01-10C-01	SD401-00-10C-01 09/10/10
Order: Arcoida	ili describita de la companio de proposition de la companio de la companio de la companio de la companio de la	и от стоя в поступать наменей не под невы в почение в почение в почение в почение в почение в почение в почение			The control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the co
Family: Arcidae	1				PORTAL PROPERTY.
Anadara transversa	:	=	-	-	-
Order: Mytiloida	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				1
Family: Mytilidae	1				
Amygdalum papyrium	and second	-	-	-	-
Order: Ostreoida					
Family: Anomiidae					
Anomia simplex		•	~	-	-
Order: Ostreoida					
Family: Anomiidae	and one				
Pododesmus rudis	and the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of t	-	-	-	-
Order: Ostreoida				A CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR OF THE CONTRACTOR	
Family: Ostreidae					The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s
Crassostrea virginica	a portion de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la compa	-	-	-	•
Order: Pholadomyoida					
Family: Lyonsiidae  Lyonsia hyalina			_	_	_
Order: Veneroida	200	-	-	-	-
Family: Mactridae					· · · · · · · · · · · · · · · · · · ·
Mactridae (LPIL)		14	14	14	· ·
Mulinia lateralis		, <del>-</del>	17	-	-
Mulinia lateralis		-	_	_	-
Family: Petricolidae					
Petricolaria pholadiformis		-	_	_	_
Family: Solecurtidae					
Tagelus plebeius		-	-	-	-
Tagelus sp.		-	-	-	-
Family: Tellinidae					
Macoma tenta		-	-	-	-
Tellinidae (LPIL)		14	-	-	-
Family: Veneridae					
Gemma gemma		-	-	-	-
Order: Veneroida					
Family: Veneridae					
Mercenaria mercenaria		14	-	-	-
Order: Veneroida			-		
Family: Veneridae					
Pitar sp.		-	-	-	-
Veneridae (LPIL)		-	-	14	<u>-</u>
Order: Unspecified					1
Family: Unspecified					
Bivalvia (LPIL)		-	-	-	-
Phylum: Phoronida					
Class: Unspecified					
Order: Unspecified Family: Unspecified					
ramily: Unspecified			1		

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Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept 2010 Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Gainesville, FL 32608 www.waterandair.com

Taxonomic Classification	Station Replicate Collection Date	LW07-K4-SD401 LW07-K4- SD401-00-10C 09/11/10	LW07-K5-SD401 LW07-K5- SD401-00-10C 09/11/10	LW07-L2-SD401-01 LW07-L2- SD401-01-10C-01	LW07-H1-SD401-01 LW07-H1- SD401-00-10C-01
Phoronida (LPIL)	######################################	43	etter om vill 100 in 100 in 100 in 100 in 100 in 100 in 100 in 100 in 100 in 100 in 100 in 100 in 100 in 100 i 	14	
Phylum: Echinodermata					
Class: Ophiuroidea					
Order: Unspecified					
Family: Unspecified					
Ophiuroidea (LPIL)		-	-	-	-
Phylum: Chordata					
Class: Cephalochordata	1				
Order: Amphioxiformes					
Family: Branchiostomatidae	•				
Branchiostoma sp.		-	-	-	-
No Organisms Present		-	•	-	-
Total Organisms		848	560	417	575
Total Taxa		13	14	10	5

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Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic Static Replica	te SD401.00.100	LW07-L5-SD401 LW07-L5- SD401-00-10C	LW07-M1-SD401 LW07-M1- SD401-00-10C	LW07-SD401 LW07-SD401-00-10C
Classification Collection Da	te 09/10/10	09/11/10	09/10/10	09/11/10
Phylum: Porifera	GENERAL PROPERTY (CONTON CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE C - CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTENT EN LE CONTE	autorioristico de contracticio de la mentencia de la mentencia de militario vicio de confederamento de major Internacional de contracticio de la mentencia de la mentencia de militario vicio de confederamento de major de		n en und de Amerika de Amerika de mante Commentan en en en en Europea (Commente de Medica en en en en Angego g
Class: Unspecified				
Order: Unspecified				
Family: Unspecified				
Porifera (LPIL)	14	-	14	-
Phylum: Cnidaria				
Class: Hydrozoa				
Order: Unspecified				
Family: Unspecified			: :	
Hydrozoa (LPIL)	-	-	14	-
Class: Anthozoa				
Order: Actiniaria				+ + + + + + + + + + + + + + + + + + +
Family: Unspecified				
Actiniaria (LPIL)	14	-	~	14
Actiniaria sp. A	-	-	-	-
Order: Unspecified	ĺ			a de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición del composición de la composición de la composición del composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composición de la composic
Family: Unspecified		554444		
Anthozoa (LPIL)	-	-	-	-
Phylum: Nemertea	1			
Class: Unspecified				manus vi. a A.
Order: Unspecified				
Family: Unspecified				S. E. Francisco
Nemertea (LPIL)	-	_	-	-
Nemertea sp. A (LPIL)	-	-	-	-
Nemertea sp. B (LPIL)	-	-	-	-
Nemertea sp. C (LPIL)	-	-	-	-
Nemertea sp. D (LPIL)	-	-	-	-
Phylum: Annelida				
Class: Polychaeta				
Order: Aciculata				
Family: Dorvilleidae		100.000		
Dorvillea (Schistomeringos) rudolphi	-	-	-	-
Dorvilleidae (LPIL)	-	-	-	-
Family: Eunicidae				
Marphysa sanguinea	-	-	-	-
Family: Glyceridae				
Glycera americana		-	-	-
Glycera dibranchiata	-	-	14	-
Glycera sp.	-	-	-	-
Ophioglycera sp.	-	-	-	-
Family: Goniadidae Glycinde solitaria	14		1	
	14	-	-	-
Family: Hesionidae	:			14
Gyptis crypta	-	•	- -	14
Hesionidae (LPIL)	-	-	-	•
Podarke obscura	- -	-	-	-
Family: Nereididae			Į.	

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Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

Report Date: 11/08/2010

Sample Method: Petite Ponar (x3)

2010

Taxonomic	Station Replicate	LW07-K1-SD401 LW07-K1- SD401-00-10C	LW07-L5-SD401 LW07-L5- SD401-00-10C	LW07-M1-SD401 LW07-M1- SD401-00-10C	LW07-SD401 LW07-SD401-00-100
Classification	Collection Date	09/10/10	09/11/10	09/10/10	09/11/10
Laeonereis culveri		-	-	•	-
Neanthes succinea		-	-	_	-
Nereididae (LPIL)		-	-	-	-
Platynereis dumerilii		**	-	-	-
Family: Oenonidae					
Drilonereis longa		•	-	-	-
Family: Onuphidae	1				
Diopatra cuprea		-	-	-	-
Family: Phyllodocidae					
Eteone sp.	1	-	-	-	-
Eumida sanguinea		-	-	-	-
Phyllodoce mucosa		-	-	-	-
Phyllodocidae (LPIL)		-	-	-	-
Family: Polynoidae					
Lepidonotus sp.		-	-	-	-
Family: Syllidae					
Grubeosyllis clavata		-	-	-	-
Syllidae (LPIL)		-	-	-	-
Order: Canalipalpata					
Family: Ampharetidae	!				
Ampharetidae (LPIL)		<u>.</u>	_	-	_
Family: Chaetopteridae					
Spiochaetopterus costarum		_	_	14	-
Family: Cirratulidae				, ,	
Aphelochaeta sp.			-	_	-
Cirratulidae (LPIL)		-	-	-	14
Tharyx sp.		_	_	187	_
Family: Pectinariidae				101	Will be considered and the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the con
Pectinaria gouldii		_	-	14	_
Pectinaria sp.		_	_	_	
Family: Sabellidae					-
Demonax microphthalmus		_	_	_	_
Sabellaria vulgaris		: : :		-	-
Sabellidae (LPIL)		-	_	_	_
		-		-	-
Sabellinae (LPIL)		- -	_	-	-
Family: Serpulidae					
Hydroides dianthus		-	-	-	-
Family: Serpulidae		1			
Hydroides diathus		-	-	-	-
Family: Serpulidae				1	A
Hydroides sp.		-	-	-	-
Serpulidae (LPIL)		•	-	-	-
Family: Spionidae				£	December 1
Apoprionospio pygmaea		-	=	-	-
Dipolydora cauleri		<del>-</del>	-	-	-
Dipolydora socialis		-	-	-	-
Marenzelleria viridis		<b>-</b>	-	-	-

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Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station	LW07-K1-SD401 LW07-K1-	LW07-L5-SD401 LW07-L5-	LW07-M1-SD401 LW07-M1-	LW07-SD401
	Replicate ection Date	SD401-00-10C 09/10/10	SD401-00-10C 09/11/10	SD401-00-10C 09/10/10	LW07-SD401-00-10C
Minuspio sp.		Philosophica (Cale No. 10 not in in its line of the light particles and entraconia and once clearly benefit or the	-	——————————————————————————————————————	eccusive and a community of communities compressed and the control of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the community of the
Paraprionospio pinnata		-	43	14	14
Polydora cornuta		29	-	14	-
Pseudopolydora sp.		-	-	-	-
Scolelepis texana		-	-	-	-
Spio sp.		-	-	_	-
Spionidae (LPIL)		-	-	-	-
Streblospio benedicti		589	57	747	445
Family: Terebellidae				i : !	
Loimia medusa		-	-	-	-
Loimia sp.		=	-	-	-
Pista cristata	1	-	-	-	-
Terebellidae (LPIL)		=	-	-	-
Order: Capitellida					
Family: Capitellidae					
Capitella capitata complex Blake	3 1 2 2 2 2	14	-	14	-
Capitella jonesi		29	-	-	-
Capitella sp.	1	-	-	-	-
Capitellidae (LPIL)		-	-	-	-
Heteromastus filiformis		-	-	-	-
Mediomastus ambiseta		-	-	101	-
Mediomastus californiensis		-	-	-	-
Mediomastus sp.		29	-	29	14
Order: Orbiniida				ĺ	
Family: Orbiniidae				1	
Leitoscoloplos fragilis	1	-	-	-	-
Leitoscoloplos sp.	Ì	-	14	-	-
Orbiniidae (LPIL)	1	-	-	-	-
Scolopios rubra	1	-	-	f	-
Order: Phyllodocida					
Family: Pilargidae					
Sigambra tentaculata		-	-	-	-
Order: Unspecified				İ	
Family: Maldanidae					
Clymenella torquata	1	-	-		-
Class: Clitellata					
Order: Haplotaxida					
Family: Naididae				1	
Paranais frici		-	-	-	-
Family: Tubificoid Naididae	// <b>5</b> // \	4.4		20	40
Tubificoid Naididae imm. w/o hair seta	ae (LPIL)	14	-	29	43
Tubificoides sp.		-	-	-	-
Phylum: Arthropoda	1		VIII.au Proper		and the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of th
Class: Malacostraca					dia di di di di di di di di di di di di di
Order: Amphipoda					
Family: Aoridae					
Aoridae (LPIL)	:	-	-	; <del>-</del>	-

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Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept 2010 Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

		20

Taxonomic	Station Replicate	LW07-K1-SD401 LW07-K1- SD401-00-10C	LW07-L5-SD401 LW07-L5- SD401-00-10C	LW07-M1-SD401 LW07-M1-	LW07-SD401 LW07-SD401-00-10C
Classification	Collection Date	09/10/10	09/11/10	SD401-00-10C 09/10/10	09/11/10
Family: Corophiidae					
Monocorophium acherusicum		-	-	-	-
Monocorophium insidiosum		-	-	-	-
Monocorophium sp.	1	=	-	-	-
Family: Liljeborgiidae					
Listriella clymenellae		-	-	-	-
Order: Cumacea	į				
Family: Bodotriidae					
Cyclaspis varians		-	-	14	-
Family: Leuconidae					
Leucon americanus		-	-	-	-
Family: Unspecified					
Cumacea (LPIL)	2 A A A A A A A A A A A A A A A A A A A	-	-	-	14
Order: Decapoda					
Family: Alpheidae	4				
Alpheus sp.		-	-	_	14
Family: Palaemonidae					
Palaemonetes sp.		-	-	-	-
Family: Panopeidae					
Panopeidae (LPIL)	197	-	-	-	-
Panopeus herbstii		-	-	-	-
Rhithropanopeus harrisii	2000	-	-	_	-
Family: Pinnotheridae	Trace -				
Pinnixa sp.	1		-	-	-
Family: Portunidae	į				- Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Cont
Callinectes sp.	· 1	-	-	_	-
Portunidae (LPIL)	š E	-	-	-	-
Family: Unspecified					
Decapoda (LPIL)	1	-	14	_	14
Decapoda (zoea)		_	-	-	_
Decapoda zoea (larva)		_	-		-
Order: Isopoda					
Family: Idoteidae					
Edotia triloba		=	-	_	_
Order: Leptostraca			A DESCRIPTION OF THE PROPERTY OF		
Family: Unspecified					
Leptostraca (LPIL)		• •	-	-	-
Order: Mysida					COLUMN TO THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PART
Family: Mysidae					
Americamysis bigelowi		-	-	-	-
Americamysis sp.		-	-	_	_
Mysidae (LPIL)		-	-	-	_
Neomysis americana	i	_	-	-	-
Family: Unspecified					
Mysidacea (LPIL)		14	_	_	-
Order: Stomatopoda	!	•		1	
Family: Squillidae					
, and a damesta			1	•	1

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Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station Replicate	LW07-K1-SD401 LW07-K1-	LW07-L5-SD401 LW07-L5-	LW07-M1-SD401 LW07-M1-	LW07-SD401 LW07-SD401-00-10C
Classification	Collection Date	SD401-00-10C 09/10/10	SD401-00-10C 09/11/10	SD401-00-10C 09/10/10	09/11/10
Squilla empusa	CONTRACTOR OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF	entimente de Combre de Profesion de La Compta de propulation de Collection (1997) de 1996, que combre adel and a 	en en en en en en en en en en en en en e	on the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of th	-
Class: Maxillopoda				APPROXIMATION OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY	
Order: Sessilia					
Family: Balanoidea	Violente				
Balanus improvisus		-	-	-	-
Family: Balanomorpha	1				
Balanomorpha (LPIL)		-	-	_	-
Class: Entognatha					
Order: Collembola					
Family: Unspecified	A Total				
Collembola (LPIL)	and the state of	-	-	-	-
Class: Unspecified	i de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de l				
Order: Unspecified					
Family: Unspecified					
Crustacea (LPIL)	t per	-	-	-	-
Phylum: Mollusca				as commercial and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and	
Class: Gastropoda					
Order: Cephalaspidea					
Family: Cylichnidae	1				
Acteocina canaliculata	and the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of t	-	43	14	29
Acteocina sp.		-	-	•	-
Order: Heterostropha					
Family: Pyramidellidae	ĺ				
Odostomia engonia		-	-	-	-
Order: Heterostropha	i i				
Family: Pyramidellidae	5				
Turbonilla interrupta		-	-	-	-
Order: Neogastropoda					
Family: Columbellidae					
Astyris lunata Nassarius vibex	į	-	-	-	-
Family: Conidae	F S	-	-	-	-
Pyrgocythara plicosa				TOTAL STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE	
Order: Neotaenioglossa	1	~	-	-	-
Family: Calyptraeidae					
Crepidula fornicata	ļ	_	_		
Crepidula plana	i.	_	_	-	-
Order: Neotaenioglossa	10		_	-	-
Family: Cerithiopsidae					
Cerithiopsis greenii		-	_	-	_
Order: Neotaenioglossa				-	
Family: Epitoniidae	res.				
Epitonium rupicola		_	_	-	_
Order: Unspecified					
Family: Unspecified					
Gastropoda (LPIL)	:	-	-	-	14
Class: Bivalvia	:				
· · · · · · · · · · · · · · · · ·					f

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## Macroinvertebrate Results Data Per Square Meter (Unpooled)

Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

2010

Taxonomic Classification	Station Replicate Collection Date	LW07-K1-SD401 LW07-K1- SD401-00-10C 09/10/10	LW07-L5-SD401 LW07-L5- SD401-00-10C	LW07-M1-SD401 LW07-M1- SD401-00-10C	LW07-SD401 LW07-SD401-00-100
Order: Arcoida		09/10/10	09/11/10	09/10/10	
Family: Arcidae					
Anadara transversa	1	_	_	_	
Order: Mytiloida				-	-
Family: Mytilidae					
Amygdalum papyrium		-	-	_	_
Order: Ostreoida				_	_
Family: Anomiidae	1				
Anomia simplex		_	_	_	_
Order: Ostreoida					
Family: Anomiidae					
Pododesmus rudis		-	_	_	_
Order: Ostreoida	1			į.	
Family: Ostreidae					
Crassostrea virginica		_	-	_	_
Order: Pholadomyoida					_
Family: Lyonsiidae					
Lyonsia hyalina		_	_	_	
Order: Veneroida				_	_
Family: Mactridae					
Mactridae (LPIL)	ŀ	-	29	_	_
Mulinia lateralis		_	_	_	
Mulinia lateralis		-	-	_	_
Family: Petricolidae				_	-
Petricolaria pholadiformis	1	-	_	_	
Family: Solecurtidae				_	-
Tagelus plebeius		_	-	_	
Tagelus sp.		_	_	_	
Family: Tellinidae	4				-
Macoma tenta	1	-	_	_	
Tellinidae (LPIL)		-	_	_	
Family: Veneridae					
Gemma gemma		-	-	_	
Order: Veneroida					_
Family: Veneridae					
Mercenaria mercenaria		-	_	_	_
Order: Veneroida	1				_
Family: Veneridae	İ			1	
Pitar sp.	1		_	_	_
Veneridae (LPIL)		14	14		_
Order: Unspecified		. ,		!	_
Family: Unspecified	\$ 2				
Bivalvia (LPIL)		-	_	14	_
Phylum: Phoronida				; IT	
Class: Unspecified			Total Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the	1	
Order: Unspecified			***************************************		
Family: Unspecified				:	a. division like

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Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

2010

Taxonomic Classification	Station Replicate Collection Date	LW07-K1-SD401 LW07-K1- SD401-00-10C	LW07-L5-SD401 LW07-L5- SD401-00-10C	LW07-M1-SD401 LW07-M1- SD401-00-10C	LW07-SD401 LW07-SD401-00-10C
	Collection Date	09/10/10	09/11/10	09/10/10	09/11/10
Phoronida (LPIL)		-	-	-	-
Phylum: Echinodermata					
Class: Ophiuroidea					
Order: Unspecified				T A. Y. Y. Y. Y. Y. Y. Y. Y. Y. Y. Y. Y. Y.	
Family: Unspecified					
Ophiuroidea (LPIL)		-	-	-	-
Phylum: Chordata					
Class: Cephalochordata					
Order: Amphioxiformes				: : :	
Family: Branchiostomatida	ae -				
Branchiostoma sp.		•	-	-	-
No Organisms Present		-	-	-	-
Total Organisms		776	216	1250	647
Total Taxa	!	11	7	16	12



RESEARCH, INC. 6821 SW Archer Road Gainesville, FL 32608 www.waterandair.com Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept 2010 Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station		LW07-SD403-01	LW07-SD404	LW03-SD534-02	
Classification	Replicate	LW07-SD402-00-10C	LW07-SD403-00-10C-01	LW07-SD404-00-10C	LW03-SD534-02-10C	
Classification	Collection Date	09/11/10	09/11/10	09/10/10	09/01/10	
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Classification	Collection Date	09/11/10	09/11/10	09/10/10	09/01/10
Phylum: Porifera	and other recommendation and the analysis of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of	98.000 kolu ostada Nasakanikonikon tusikonta ja juga sasayan ja autosa asasa eta susaan sa kun ja juga	alakaineko kalekoo oon kalakaineko koolokkii (poka oonoo oo oo oo oo oo oo oo oo oo oo oo		
Class: Unspecified				an a constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant of the constant	
Order: Unspecified					incident
Family: Unspecified					na nambara
Porifera (LPIL)		_	-	_	
Phylum: Cnidaria					-
Class: Hydrozoa					
Order: Unspecified					WY YEAR CALLED TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A TO BE A
Family: Unspecified					oncome of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the se
Hydrozoa (LPIL)		14	-	_	
Class: Anthozoa				manufacture of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the	-
Order: Actiniaria					
Family: Unspecified					SALAN SALAN SALAN
Actiniaria (LPIL)		_	_		
Actiniaria sp. A		_	<u>_</u>	-	-
Order: Unspecified			-	-	-
Family: Unspecified					
Anthozoa (LPIL)		_	_	***	
Phylum: Nemertea		<del>-</del>	-	-	-
Class: Unspecified					
Order: Unspecified					
Family: Unspecified					
Nemertea (LPIL)					
Nemertea sp. A (LPIL)		:	-	-	-
Nemertea sp. B (LPIL)		_	-	-	<b>-</b>
Nemertea sp. C (LPIL)		- -	_	-	-
Nemertea sp. D (LPIL)		-	-	-	-
Phylum: Annelida		-	-	-	-
Class: Polychaeta					
Order: Aciculata					
Family: Dorvilleidae					
Dorvillea (Schistomeringos) rudol	nhi				
Dorvilleidae (LPIL)	OH	-	-	-	-
Family: Eunicidae		: <del>-</del>	<del>-</del>	-	-
Marphysa sanguinea		:			
Family: Glyceridae		• •	-	-	-
Glycera americana					/
Glycera americana Glycera dibranchiata		-	<del>-</del>	-	-
		-	-	-	-
Glycera sp. Ophioglycera sp.			-	_	-
Family: Goniadidae		- -	-	-	-
Glycinde solitaria		29			
Family: Hesionidae		29	-	-	-
		- 14			
Gyptis crypta		14	<del>-</del>	-	-
Hesionidae (LPIL)		-	-	-	-
Podarke obscura		. ••	<del>-</del>	-	-
Family: Nereididae					

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Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic Classification	Station Replicate Collection Date	LW07-SD402 LW07-SD402-00-10C	LW07-SD403-01 LW07-SD403-00-10C-01 09/11/10	LW07-SD404 LW07-SD404-00-10C 09/10/10	LW03-SD534-02 LW03-SD534-02-100 09/01/10
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Neanthes succinea		-	-	-	-
Nereididae (LPIL)		-	-	-	_
Platynereis dumerilii		_	-	-	-
Family: Oenonidae					
Drilonereis longa		14	-	-	-
Family: Onuphidae					
Diopatra cuprea		-	-	-	<del>-</del>
Family: Phyllodocidae					
Eteone sp.		_	-	14	-
Eumida sanguinea		_	_	-	-
Phyllodoce mucosa		_	-	-	-
Phyllodocidae (LPIL)		_	-	-	_
Family: Polynoidae					
Lepidonotus sp.		-	_	-	_
Family: Syllidae					
Grubeosyllis clavata		_	_		_
Syllidae (LPIL)		_	_	_	_
Order: Canalipalpata				-	-
Family: Ampharetidae					
Ampharetidae (LPIL)		_	_		
Family: Chaetopteridae		-	_	-	-
Spiochaetopterus costarum			_		
Family: Cirratulidae		-	-	-	-
Aphelochaeta sp.		14	-	-	-
Cirratulidae (LPIL)		72	-	144	•
Tharyx sp.		12	-	43	-
Family: Pectinariidae		20			
Pectinaria gouldii		29	-	-	-
Pectinaria sp.		-	-	-	-
Family: Sabellidae					
Demonax microphthalmus		-	-	-	-
Sabellaria vulgaris		-	-	-	-
Sabellidae (LPIL)			14	-	-
Sabellinae (LPIL)		-	•	-	-
Family: Serpulidae					
Hydroides dianthus		* <b>-</b>		-	-
Family: Serpulidae					
Hydroides diathus		-	-	-	-
Family: Serpulidae					
Hydroides sp.		-	-	-	-
Serpulidae (LPIL)		-	-	-	-
Family: Spionidae		:			
Apoprionospio pygmaea		- !	-	-	-
Dipolydora cauleri		-	-	-	-
Dipolydora socialis		<u>-</u>	-	-	-
Marenzelleria viridis		-	-	-	-

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Data Per Square Meter (Unpooled)

### Macroinvertebrate Results Data Per Square Meter (Unpooled)

Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station	LW07-SD402	LW07-SD403-01	LW07-SD404	LW03-SD534-02
A1 181 41	Replicate llection Date	LW07-SD402-00-10C	LW07-SD403-00-10C-01 09/11/10	LW07-SD404-00-10C	LW03-SD534-02-100
			09/1 (/10 	09/10/10	09/01/10
Minuspio sp.		-	-	- 70	-
Paraprionospio pinnata		86	-	72	-
Polydora cornuta		-	-	-	-
Pseudopolydora sp.		-	-	-	-
Scolelepis texana		<del>-</del>	-	-	-
Spio sp.		<u>-</u>	-	-	-
Spionidae (LPIL)		-	4.45	-	-
Streblospio benedicti		963	445	632	-
Family: Terebellidae					
Loimia medusa		-	-	-	-
Loimia sp.		-	-	•	-
Pista cristata		-	-	-	-
Terebellidae (LPIL)		-	-	-	-
Order: Capitellida					
Family: Capitellidae			To company after a contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of		· Land
Capitella capitata complex Blake		: <u>-</u>	-	-	-
Capitella jonesi		i _	-	-	-
Capitella sp.		<del>-</del>	-	-	-
Capitellidae (LPIL)		-	-	-	-
Heteromastus filiformis		-	-	-	-
Mediomastus ambiseta		417	-	-	-
Mediomastus californiensis		-	-	-	-
Mediomastus sp.		273	14	503	-
Order: Orbiniida		·			
Family: Orbiniidae					
Leitoscoloplos fragilis		14	-	-	-
Leitoscoloplos sp.		-	-	-	-
Orbiniidae (LPIL)		-	-	-	-
Scolopios rubra		-	-	-	-
Order: Phyllodocida					
Family: Pilargidae					
Sigambra tentaculata		-	-	-	-
Order: Unspecified		5			
Family: Maldanidae					
Clymenella torquata		-	-	-	-
Class: Clitellata					
Order: Haplotaxida					
Family: Naididae					
Paranais frici		-	-	-	_
Family: Tubificoid Naididae					
Tubificoid Naididae imm. w/o hair se	lae (LPIL)	57	14	_	_
Tubificoides sp.	(LI IL)	_	-	_	-
Phylum: Arthropoda					
Class: Malacostraca					
Order: Amphipoda					
Family: Aoridae					
		1	_		· _
Aoridae (LPIL)		· •		•	-

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Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept 2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Replicate Collection Date	LW07-SD402-00-10C 09/11/10 - - - - -	LW07-SD403-00-10C-01 09/11/10  14 -	LW07-SD404-00-10C 09/10/10 - - - -	LW03-SD534-02 LW03-SD534-02-10C 09/01/10 - - -
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Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic Classification	Station Replicate Collection Date	LW07-SD402 LW07-SD402-00-10C	LW07-SD403-01 LW07-SD403-00-10C-01		
Section (ACC) (ACC) (Accessed to the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract of the Contract	Collection Date	09/11/10	09/11/10	09/10/10	09/01/10
Squilla empusa		-	-	-	-
Class: Maxillopoda					
Order: Sessilia					
Family: Balanoidea					
Balanus improvisus		<b>-</b>	-		-
Family: Balanomorpha					The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s
Balanomorpha (LPIL)		-	-	-	-
Class: Entognatha		1			
Order: Collembola		1			
Family: Unspecified					
Collembola (LPIL) Class: Unspecified		-	-	-	-
Order: Unspecified					
Family: Unspecified					
Crustacea (LPIL)		_			
Phylum: Mollusca		_	-	-	-
Class: Gastropoda					
Order: Cephalaspidea					
Family: Cylichnidae					
Acteocina canaliculata		29	_	43	_
Acteocina sp.			_		-
Order: Heterostropha			- A Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Co	-	_
Family: Pyramidellidae					
Odostomia engonia		<u>-</u>	_	_	_
Order: Heterostropha					
Family: Pyramidellidae		1			
Turbonilla interrupta		_	-	-	_
Order: Neogastropoda			* · · · · · · · · · · · · · · · · · · ·		
Family: Columbellidae					
Astyris lunata		_	-	-	_
Nassarius vibex		-	-	-	-
Family: Conidae					
Pyrgocythara plicosa		-	-	-	-
Order: Neotaenioglossa		i i			
Family: Calyptraeidae					
Crepidula fornicata		•	-	-	-
Crepidula plana		-	-	_	-
Order: Neotaenioglossa					
Family: Cerithiopsidae					
Cerithiopsis greenii		<u>-</u>	-	-	-
Order: Neotaenioglossa					
Family: Epitoniidae					
Epitonium rupicola		-	-	-	-
Order: Unspecified		\$		1	
Family: Unspecified					
Gastropoda (LPIL)		<u>-</u>	-	_	-
Class: Bivalvia					

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Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station	LW07-SD402	LW07-SD403-01	LW07-SD404	LW03-SD534-02
Classification	Replicate Collection Date	LW07-SD402-00-10C	LW07-SD403-00-10C-01	LW07-SD404-00-10C	LW03-SD534-02-10C
BANGORIA PROBLEMA BANGA BANGA BANGA BANGA BANGA BANGA BANGA BANGA BANGA BANGA BANGA BANGA BANGA BANGA BANGA BA	Solic Charles	09/11/10	09/11/10	09/10/10	09/01/10
Order: Arcoida					
Family: Arcidae					
Anadara transversa		-	-	-	-
Order: Mytiloida					
Family: Mytilidae					
Amygdalum papyrium		-	-	-	-
Order: Ostreoida					
Family: Anomiidae					
Anomia simplex		-	-	-	-
Order: Ostreoida					
Family: Anomiidae					
Pododesmus rudis		-	-	-	-
Order: Ostreoida					
Family: Ostreidae					
Crassostrea virginica		-	•	-	-
Order: Pholadomyoida					
Family: Lyonsiidae					
Lyonsia hyalina		-	-	-	-
Order: Veneroida					
Family: Mactridae					
Mactridae (LPIL)		-	43	-	-
Mulinia lateralis		-	_	-	-
Mulinia lateralis		-	<del>-</del>	-	_
Family: Petricolidae					
Petricolaria pholadiformis		-	-	-	_
Family: Solecurtidae					
Tagelus plebeius		-	-	-	_
Tagelus sp.		-	14	-	_
Family: Tellinidae					
Macoma tenta		-	-	<u>-</u>	-
Tellinidae (LPIL)		. <b>-</b>	-	-	_
Family: Veneridae					
Gemma gemma		_	-	-	-
Order: Veneroida					
Family: Veneridae					
Mercenaria mercenaria		-	_	_	_
Order: Veneroida					
Family: Veneridae					
Pitar sp.		_	-	<u>-</u>	_
Veneridae (LPIL)		14	14	14	_
Order: Unspecified					
Family: Unspecified					
Bivalvia (LPIL)		_	<del>-</del>	29	_
Phylum: Phoronida					
Class: Unspecified					
Order: Unspecified					
Family: Unspecified					
,,					

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Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept 2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Gainesville, FL 32608 www.waterandair.com

Taxonomic Classification	Station Replicate Collection Date		LW07-SD403-01 LW07-SD403-00-10C-01	LW07-SD404 LW07-SD404-00-10C	LW03-SD534-02 LW03-SD534-02-10C 09/01/10
Phoronida (LPIL)	\$ v + 600 KC 60 m 40 m 50 kG 60 kG 70 kG 60 kG 60 kG 60 kG 60 kG 60 kG 60 kG 60 kG 60 kG 60 kG 60 kG 60 kG 60 kG	43	s vallen valent kan korsus sin asterian ett sed delta oppgropplegt ett sen dallet geno generalistist statt opp 	ann an teachair ann an t-aireann an t-aireann an t-aireann an t-aireann an t-aireann an t-aireann an t-aireann —	
Phylum: Echinodermata					
Class: Ophiuroidea					
Order: Unspecified					
Family: Unspecified		ann or			
Ophiuroidea (LPIL)		-	-	-	-
Phylum: Chordata					
Class: Cephalochordata					
Order: Amphioxiformes				and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s	
Family: Branchiostomatidae					
Branchiostoma sp.		-	-	-	-
No Organisms Present		-	-	-	✓
Total Organisms		2098	603	1494	14
Total Taxa		17	10	9	N/A



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#### Macroinvertebrate Results Data Per Square Meter (Unpooled)

Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

LW03-SD534-03 **Taxonomic** Station LW03-SD550-02 LW03-SD550-03 LW03-SD558-02 LW03-SD534-03-10C LW03-SD550-02-10C LW03-SD550-03-10C LW03-SD558-02-10C Replicate Classification Collection Date 09/01/10 09/08/10 09/08/10 09/08/10 Phylum: Porifera Class: Unspecified Order: Unspecified Family: Unspecified Porifera (LPIL) Phylum: Cnidaria Class: Hydrozoa Order: Unspecified Family: Unspecified Hydrozoa (LPIL) Class: Anthozoa Order: Actiniaria Family: Unspecified Actiniaria (LPIL) Actiniaria sp. A Order: Unspecified Family: Unspecified Anthozoa (LPIL) Phylum: Nemertea Class: Unspecified Order: Unspecified Family: Unspecified Nemertea (LPIL) Nemertea sp. A (LPIL) Nemertea sp. B (LPIL) Nemertea sp. C (LPIL) Nemertea sp. D (LPIL) Phylum: Annelida Class: Polychaeta Order: Aciculata Family: Dorvilleidae Dorvillea (Schistomeringos) rudolphi 86 Dorvilleidae (LPIL) Family: Eunicidae Marphysa sanguinea Family: Glyceridae Glycera americana Glycera dibranchiata Glycera sp. Ophioglycera sp. Family: Goniadidae 29 Glycinde solitaria Family: Hesionidae Gyptis crypta 43 57 Hesionidae (LPIL) Podarke obscura 72 Family: Nereididae

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Laeonereis culveri		-	-	-	-
Neanthes succinea			-	-	-
Nereididae (LPIL)		-	-	•	-
Platynereis dumerilii		-	-	-	-
Family: Oenonidae					
Drilonereis longa		-	-	-	-
Family: Onuphidae					
Diopatra cuprea		-	-	-	-
Family: Phyllodocidae					
Eteone sp.		-	-	-	-
Eumida sanguinea		-	-	-	-
Phyllodoce mucosa		-	-	-	_
Phyllodocidae (LPIL)		-	-	-	-
Family: Polynoidae					
Lepidonotus sp.		-	_	-	-
Family: Syllidae					
Grubeosyllis clavata		-	-	-	-
Syllidae (LPIL)		-	_	_	-
Order: Canalipalpata					- T Contracting and
Family: Ampharetidae					
Ampharetidae (LPIL)		-	-	! -	-
Family: Chaetopteridae					
Spiochaetopterus costarum		-	_	<u>-</u>	-
Family: Cirratulidae				1	
Aphelochaeta sp.		-	_	_	-
Cirratulidae (LPIL)			_	-	-
Tharyx sp.		-	-	! ! -	-
Family: Pectinariidae				j	
Pectinaria gouldii		14	-	<u>-</u>	-
Pectinaria sp.		-	_	-	-
Family: Sabellidae					A
Demonax microphthalmus			_	-	-
Sabellaria vulgaris			-	-	_
Sabellidae (LPIL)		<u>-</u>	_	_	-
Sabellinae (LPIL)		<u>.</u>	_	_	-
Family: Serpulidae		:			
Hydroides dianthus		<u>-</u>	_	-	-
Family: Serpulidae					
Hydroides diathus		_	_	<u>-</u>	_
Family: Serpulidae					
Hydroides sp.		29	_	_	-
Serpulidae (LPIL)		-	-	_	_
Family: Spionidae				i i	
Apoprionospio pygmaea		: <u>-</u>	_	_	_
Dipolydora cauleri		_	-	-	-
Dipolydora socialis		_	_	_	_
Marenzelleria viridis		: <b>-</b>	_	-	_
Warengeria Villais			l		}

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Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

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Taxonomic Classification	Station Replicate ollection Date	LW03-SD534-03 LW03-SD534-03-10C	LW03-SD550-02 LW03-SD550-02-10C	LW03-SD550-03 LW03-SD550-03-10C	LW03-SD558-02 LW03-SD558-02-10C
Minuspio sp.	MICH CATTER MICH CONTEX A COMPANY OF A CAST OF A COMPANY		procedental and the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the c	processor of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the trade of the t	
Paraprionospio pinnata		101	-	-	-
Polydora cornuta		-	_	-	-
Pseudopolydora sp.		-	-	-	-
Scolelepis texana		-	-	-	-
<i>Spio</i> sp.		-	-	-	-
Spionidae (LPIL)		-	-	-	-
Streblospio benedicti		-	14	-	-
Family: Terebellidae					agramment access
Loimia medusa		-	-	-	-
<i>Loimia</i> sp.		-	-	-	-
Pista cristata		-	-	-	
Terebellidae (LPIL)		43	-	-	-
Order: Capitellida					dur e entre de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de la constanta de
Family: Capitellidae				Permanent	March vocables.
Capitella capitata complex Blake		-	-	-	•
Capitella jonesi		-	-	-	
Capitella sp.		-	-	-	-
Capitellidae (LPIL)		=	-	-	-
Heteromastus filiformis		14	-	-	-
Mediomastus ambiseta		-	-	-	-
Mediomastus californiensis			-	-	-
Mediomastus sp.		14	-	-	-
Order: Orbiniida					
Family: Orbiniidae					
Leitoscoloplos fragilis		-	-	-	-
Leitoscoloplos sp.		-	-	-	-
Orbiniidae (LPIL)		-	-	-	-
Scolopios rubra		-	-	-	-
Order: Phyllodocida					
Family: Pilargidae					
Sigambra tentaculata		-	-	-	-
Order: Unspecified					
Family: Maldanidae					
Clymenella torquata		-	-	-	-
Class: Clitellata					
Order: Haplotaxida					a)
Family: Naididae					
Paranais frici		-	-	-	-
Family: Tubificoid Naididae					· · · · · · · · · · · · · · · · · · ·
Tubificoid Naididae imm. w/o hair se	etae (LPIL)	-	-	-	-
Tubificoides sp.		29	-	-	-
Phylum: Arthropoda					and the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the second section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of t
Class: Malacostraca					700
Order: Amphipoda					
Family: Aoridae					T and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second
Aoridae (LPIL)		=	-	-	-

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2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

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Taxonomic	Station	LW03-SD534-03	LW03-SD550-02	LW03-SD550-03	LW03-SD558-02
Classification	Collection Date	09/01/10	09/08/10	LW03-SD550-03-10C	LW03-SD558-02-10C
Family: Corophiidae	kandak kana sepinan sepinsulan senara na manungitan sementan sepinsulan apan senara panakan		of types and the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the cont	<ul> <li>М. ОКРОНИКОВО СОСТИРУ ОБЛИТИЧЕСТВИЙ ПО ПОТИТИТЕ ПО ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В ПОТИТИТЕ В П</li></ul>	PROPOSITE - PROPOSITION OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE
Monocorophium acherusicum		-	-	-	-
Monocorophium insidiosum		_	-	-	-
Monocorophium sp.		_	-	-	-
Family: Liljeborgiidae					An and an analysis of the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second seco
Listriella clymenellae		-	-	-	•
Order: Cumacea					
Family: Bodotriidae					
Cyclaspis varians		-	-	<u>-</u>	-
Family: Leuconidae					AAAA
Leucon americanus		-	-	_	-
Family: Unspecified					Troys
Cumacea (LPIL)		_	-	-	-
Order: Decapoda					
Family: Alpheidae					
Alpheus sp.		-	-	_	-
Family: Palaemonidae					
Palaemonetes sp.		-	-	-	-
Family: Panopeidae					
Panopeidae (LPIL)		-	-	-	-
Panopeus herbstii		-	-	-	-
Rhithropanopeus harrisii		-	-	-	-
Family: Pinnotheridae					
Pinnixa sp.		-	-	_	-
Family: Portunidae					
Callinectes sp.		-	-	<u>-</u>	-
Portunidae (LPIL)		-	-	-	-
Family: Unspecified					
Decapoda (LPIL)		-	-	-	-
Decapoda (zoea)		-	-	-	-
Decapoda zoea (larva)		-	-	29	-
Order: Isopoda					
Family: Idoteidae					
Edotia triloba		-	-	-	<del>-</del>
Order: Leptostraca					
Family: Unspecified		1			
Leptostraca (LPIL)		-	-	-	-
Order: Mysida					
Family: Mysidae		1			
Americamysis bigelowi		-	-	-	-
Americamysis sp.		_	-	-	-
Mysidae (LPIL)		-	-	-	-
Neomysis americana		-	-	-	-
Family: Unspecified					
Mysidacea (LPIL)		-	-	-	-
Order: Stomatopoda		:			
Family: Squillidae					

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Prepared For: CH2M HILL

Project: Navy Clean III Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station Replicate	LW03-SD534-03 LW03-SD534-03-10C	LW03-SD550-02	LW03-SD550-03	LW03-SD558-02
Classification	Collection Date	09/01/10	09/08/10	09/08/10	LW03-SD558-02-10C 09/08/10
Squilla empusa	eren voran enemetiko (SSS) kirki in tari enemetiko (SASA) enemetiko (SASA) (SSS) erri kopuga	n (1900) de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta del la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta del la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta de la compacta del la compacta de la compacta de la compacta del la compacta del la compacta del la compacta del la compacta del la compacta del la compacta del la compacta del la compacta del la compacta del la compacta	in 1990 organis (1990 - 1990 - 1990 - 1990 - 1990 - 1990 organis (1990 - 1990 - 1990 - 1990 organis (1990 - 19 		erren erren erren erren erren erren erren erren erren erren erren erren erren erren erren erren erren erren er -
Class: Maxillopoda					
Order: Sessilia					
Family: Balanoidea					
Balanus improvisus		-	<del>-</del>	-	-
Family: Balanomorpha					
Balanomorpha (LPIL)		-	<del>-</del>	-	-
Class: Entognatha					
Order: Collembola					
Family: Unspecified					
Collembola (LPIL)		-	-	-	-
Class: Unspecified		1			
Order: Unspecified					
Family: Unspecified					
Crustacea (LPIL)			-	-	-
Phylum: Mollusca					
Class: Gastropoda					
Order: Cephalaspidea					
Family: Cylichnidae					
Acteocina canaliculata		14	-	-	_
Acteocina sp.		-	-	-	-
Order: Heterostropha					
Family: Pyramidellidae					
Odostomia engonia		_	-	-	-
Order: Heterostropha					
Family: Pyramidellidae					
Turbonilla interrupta		# # # # # # # # # # # # # # # # # # #	-	-	-
Order: Neogastropoda					
Family: Columbellidae					
Astyris lunata		-	-	-	-
Nassarius vibex		-	-	-	-
Family: Conidae		1			
Pyrgocythara plicosa		- !	-	-	-
Order: Neotaenioglossa					
Family: Calyptraeidae					
Crepidula fornicata		<del>-</del>	-	•	-
Crepidula plana			-	-	-
Order: Neotaenioglossa					
Family: Cerithiopsidae					
Cerithiopsis greenii		-	-	-	-
Order: Neotaenioglossa					
Family: Epitoniidae		1 0			
Epitonium rupicola		<del>-</del>	-	-	-
Order: Unspecified					
Family: Unspecified		: : :			
Gastropoda (LPIL)			-	-	-
Class: Bivalvia					

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water & air RESEARCH, INC.

6821 SW Archer Road Gainesville, FL 32608 www.waterandair.com

# Macroinvertebrate Results Data Per Square Meter (Unpooled)

Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station	LW03-SD534-03	LW03-SD550-02	LW03-SD550-03	LW03-SD558-02
			LW03-SD550-02-10C	LW03-SD550-03-10C	LW03-SD558-02-10C
Classification	Collection Date	09/01/10	09/08/10	09/08/10	09/08/10
Order: Arcoida				<ol> <li>От 19 м об при принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний принципалний пр</li></ol>	to the first and an extension of the anti-section of the anti-section of the angelogy open pages, and personal open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a section of the angelogy open and a
Family: Arcidae					
Anadara transversa	4	-	<del>-</del>	-	-
Order: Mytiloida					
Family: Mytilidae					
Amygdalum papyrium	J.	-	-	-	-
Order: Ostreoida					
Family: Anomiidae	i				
Anomia simplex		14	-	-	-
Order: Ostreoida					
Family: Anomiidae	1				
Pododesmus rudis		-	<del>-</del>	-	-
Order: Ostreoida					
Family: Ostreidae	1				
Crassostrea virginica		-	-	-	-
Order: Pholadomyoida	!				
Family: Lyonsiidae					
Lyonsia hyalina	ļ	=	-	-	-
Order: Veneroida					
Family: Mactridae					
Mactridae (LPIL)		-	-	-	-
Mulinia lateralis	ļ	-	-	-	-
Mulinia lateralis		-	-	-	-
Family: Petricolidae					
Petricolaria pholadiformis		-	-	-	-
Family: Solecurtidae					
Tagelus plebeius Tagelus sp.		-	-	-	-
Family: Tellinidae		<u>-</u>	-	-  -  -	-
Macoma tenta					
Tellinidae (LPIL)		_	-	-	-
Family: Veneridae				_	-
Gemma gemma		_	_		
Order: Veneroida				-	-
Family: Veneridae					
Mercenaria mercenaria		-	_	_	_
Order: Veneroida					_
Family: Veneridae					
Pitar sp.		<u>-</u>	_	_	-
Veneridae (LPIL)		29	-	-	_
Order: Unspecified			The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s		
Family: Unspecified					
Bivalvia (LPIL)		- -	-		-
Phylum: Phoronida				* (1000)**	
Class: Unspecified					
Order: Unspecified					
Family: Unspecified				1	
				,	

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Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic Classification	Station Replicate Collection Date	LW03-SD534-03 LW03-SD534-03-10C	LW03-SD550-02 LW03-SD550-02-10C	LW03-SD550-03 LW03-SD550-03-10C	LW03-SD558-02 LW03-SD558-02-10C
Phoronida (LPIL)	kino kini mara 197 (kini kanin kini maran 1966) aa maran 1966 (kini maran 1966) aa maran 1966 (kini maran 1966)	and deposition of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract		THE CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL OF CONTROL	ій сі містемійних страйній российній проценті по страйній поставов поставов поставов поставов поставов поставов 
Phylum: Echinodermata	:				
Class: Ophiuroidea					
Order: Unspecified					
Family: Unspecified					
Ophiuroidea (LPIL)		-	-	-	-
Phylum: Chordata					
Class: Cephalochordata					
Order: Amphioxiformes					
Family: Branchiostomatidae	<b>!</b>				
Branchiostoma sp.		-	-	-	-
No Organisms Present		-	-	-	✓
Total Organisms		589	14	29	14
Total Taxa		15	1	1	N/A

Sample Method: Petite Ponar (x3)



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# Macroinvertebrate Results Data Per Square Meter (Unpooled)

Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

Clean III Report Date: 11/08/2010 Clean Aug-Sept

2010

Taxonomic Classification colle	Station Replicate L ction Date	LW03-SD558-03 .W03-SD558-03-10C	LW07-L2-SD401-02 LW07-L2- SD401-02-10C-02	LW07-L2-SD401-03 LW07-L2- SD401-03-10C-03	LW07-H1-SD401-02 LW07-H1- SD401-00-10C-02
	CHOT DUIC	USIUUI IU	09/11/10	09/11/10	09/10/10
Phylum: Porifera	1				
Class: Unspecified					
Order: Unspecified					
Family: Unspecified		100	4.4		
Porifera (LPIL)		-	14	-	-
Phylum: Cnidaria					
Class: Hydrozoa					
Order: Unspecified		gran a delaka			
Family: Unspecified					
Hydrozoa (LPIL)		-	-	-	-
Class: Anthozoa		Ì			
Order: Actiniaria					
Family: Unspecified		As CLASS STORM			
Actiniaria (LPIL)		-	-	-	-
Actiniaria sp. A		-	-	-	-
Order: Unspecified					
Family: Unspecified		,			
Anthozoa (LPIL)		-	-	-	-
Phylum: Nemertea					
Class: Unspecified					
Order: Unspecified					
Family: Unspecified					
Nemertea (LPIL)		-	-	-	-
Nemertea sp. A (LPIL)		-	-	-	-
Nemertea sp. B (LPIL)		-	-	-	-
Nemertea sp. C (LPIL)		-	<b>-</b>	14	-
Nemertea sp. D (LPIL)		-	-	•	-
Phylum: Annelida	i				
Class: Polychaeta					
Order: Aciculata	1				
Family: Dorvilleidae	1				
Dorvillea (Schistomeringos) rudolphi	1	-	<del>-</del>	-	-
Dorvilleidae (LPIL)	:	-	-	-	-
Family: Eunicidae	A 440				
Marphysa sanguinea		-	<del>-</del>	-	
Family: Glyceridae	The second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second secon				
Glycera americana		-	<del>-</del>	-	-
Glycera dibranchiata		-	<del>-</del>	-	-
Glycera sp.		-	-	-	-
Ophioglycera sp. Family: Goniadidae	, and the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of	-	<del>-</del>	-	-
Glycinde solitaria		_	_	14	
Family: Hesionidae		-	=	14	-
Gyptis crypta		_	_		
Gyptis Crypta Hesionidae (LPIL)		-	-	<u>-</u>	- -
Podarke obscura		_	- -	- !	-
Family: Nereididae		-	- :	_	-
i anniy. Nereididae				1	

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Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

6821 SW Archer Road Gainesville, FL 32608 www.waterandair.com

2010

xonomic assification	Station Replicate Collection Date	LW03-SD558-03 LW03-SD558-03-10C	SD401-02-10C-02	LW07-L2-SD401-03 LW07-L2- SD401-03-10C-03	LW07-H1-SD401-0 LW07-H1- SD401-00-10C-0
		P00/00/10	09/11/10	09/11/10	09/10/10
Laeonereis culveri		-	-	-	-
Neanthes succinea		-		-	-
Nereididae (LPIL)		-	=	-	_
Platynereis dumerilii		-	-	-	-
Family: Oenonidae					
Drilonereis longa		-	-	-	-
Family: Onuphidae					
Diopatra cuprea		-	-	-	-
Family: Phyllodocidae					
Eteone sp.		-	-	-	-
Eumida sanguinea		-	=	-	_
Phyllodoce mucosa		-	-	-	-
Phyliodocidae (LPIL)		-	_	-	-
Family: Polynoidae					
Lepidonotus sp.		_	-	_	-
Family: Syllidae					Market Co. Co. Co. Co. Co. Co. Co. Co. Co. Co.
Grubeosyllis clavata		_	_	_	
Syllidae (LPIL)		_	_	_	
Order: Canalipalpata				_	_
Family: Ampharetidae					
Ampharetidae (LPIL)		-	-	-	-
Family: Chaetopteridae					
Spiochaetopterus costarum		-	-	-	-
Family: Cirratulidae					
Aphelochaeta sp.		-	-	-	-
Cirratulidae (LPIL)		-	14	-	-
Tharyx sp.		-	14	129	-
Family: Pectinariidae					
Pectinaria gouldii		-	-	-	-
<i>Pectinaria</i> sp.		-	-	-	-
Family: Sabellidae					
Demonax microphthalmus		-	-	<del>-</del>	_
Sabellaria vulgaris		-	-	-	_
Sabellidae (LPIL)		<u>-</u>	-	-	_
Sabellinae (LPIL)		-	-	<u>-</u>	_
Family: Serpulidae					
Hydroides dianthus		_	-	_	_
Family: Serpulidae					_
Hydroides diathus		_	_	_	Table Street
Family: Serpulidae		_  -	-	· ·	-
Hydroides sp.					
		-	-	-	-
Serpulidae (LPIL)		-	-	-	-
Family: Spionidae					
Apoprionospio pygmaea		-	•	-	-
Dipolydora cauleri		-	-	-	-
Dipolydora socialis		-	=	-	-
Marenzelleria viridis		<u>-</u>	-	· -	-

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## Macroinvertebrate Results Data Per Square Meter (Unpooled)

Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic Classification Col	Station Replicate llection Date	LW03-SD558-03 LW03-SD558-03-10C 09/08/10	LW07-L2-SD401-02 LW07-L2- SD401-02-10C-02	LW07-L2-SD401-03 LW07-L2- SD401-03-10C-03	LW07-H1-SD401-02 LW07-H1- SD401-00-10C-02
Minuspio sp.			— ————————————————————————————————————	9/11/10   http://www.com/com/com/com/com/com/com/com/com/com/	09/10/10 -
Paraprionospio pinnata		-	43	43	14
Polydora cornuta		-	-		-
Pseudopolydora sp.		_	_	: : :	-
Scolelepis texana		_	_	_	-
Spio sp.		_	-	<u>.</u>	-
Spionidae (LPIL)		· _	<u>-</u>	-	_
Streblospio benedicti		_	230	445	187
Family: Terebellidae			200		
Loimia medusa		_	_		_
			_		_
Loimia sp.			_		-
Pista cristata			_	· •	-
Terebellidae (LPIL)		-	-	<u>-</u>	-
Order: Capitellida					
Family: Capitellidae				14	
Capitella capitata complex Blake		-	-	14	-
Capitella jonesi		-	-	-	-
Capitella sp.		-	-	-	-
Capitellidae (LPIL)		=	-	=	-
Heteromastus filiformis		-	-		-
Mediomastus ambiseta		-	86	86	57
Mediomastus californiensis		-	-	-	-
Mediomastus sp.		-	57	172	-
Order: Orbiniida					a company and the
Family: Orbiniidae					
Leitoscoloplos fragilis		-	-	-	-
Leitoscoloplos sp.		-	-	-	-
Orbiniidae (LPIL)		-	-	-	-
Scolopios rubra		-	-	-	-
Order: Phyllodocida					
Family: Pilargidae		- And Andrews			
Sigambra tentaculata		-	14	-	-
Order: Unspecified					
Family: Maldanidae					
Clymenella torquata		-	-	_	-
Class: Clitellata		:			
Order: Haplotaxida					
Family: Naididae		i			
Paranais frici		_	_	-	_
Family: Tubificoid Naididae		3			
Tubificoid Naididae imm. w/o hair se	tae (LPIL)	_	14	- -	-
Tubificoides sp.	( / /	_	-	-	_
Phylum: Arthropoda		±			
Class: Malacostraca				1	1
Order: Amphipoda					
Family: Aoridae					
				į	
Aoridae (LPIL)					-

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Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic Classification	Station Replicate Collection Date	LW03-SD558-03 LW03-SD558-03-10C	SD401-02-10C-02	LW07-L2-SD401-03 LW07-L2- SD401-03-10C-03	LW07-H1-SD401-02 LW07-H1- SD401-00-10C-02
			09/11/10	09/11/10	09/10/10
Family: Corophildae					
Monocorophium acherusicum		-	-	-	-
Monocorophium insidiosum		-	-	-	-
Monocorophium sp.		-	-	-	<u>-</u>
Family: Liljeborgiidae					
Listriella clymenellae		-	-	-	<u>.</u>
Order: Cumacea					
Family: Bodotriidae					
Cyclaspis varians		-	-	-	-
Family: Leuconidae					
Leucon americanus		-	-	14	-
Family: Unspecified					
Cumacea (LPIL)			-	-	-
Order: Decapoda					
Family: Alpheidae					- Caracian and
Alpheus sp.		-	-	-	-
Family: Palaemonidae					
Palaemonetes sp.		-	-	-	-
Family: Panopeidae					recover graph ( to
Panopeidae (LPIL)		-	-	-	-
Panopeus herbstii		-	-	-	-
Rhithropanopeus harrisii		-	-	-	-
Family: Pinnotheridae		i i			
Pinnixa sp.		-	-	-	-
Family: Portunidae					
Callinectes sp.		-	-	-	-
Portunidae (LPIL)		-	-	-	-
Family: Unspecified					
Decapoda (LPIL)		-	-	-	-
Decapoda (zoea)		-	-	-	-
Decapoda zoea (larva)		<u>-</u>	-	-	-
Order: Isopoda					
Family: Idoteidae					
Edotia triloba		-	-	-	-
Order: Leptostraca					
Family: Unspecified					
Leptostraca (LPIL)		-	-	-	-
Order: Mysida					
Family: Mysidae					
Americamysis bigelowi		-	-	14	-
Americamysis sp.		-	-	_	-
Mysidae (LPIL)		-	-	-	-
Neomysis americana		-	-	- -	-
Family: Unspecified				· ·	
Mysidacea (LPIL)		-	-	<u>-</u>	-
Order: Stomatopoda				i C	
Family: Squillidae					
				,	:

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Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic Classification	Station Replicate Collection Date	LW03-SD558-03 LW03-SD558-03-10C	LW07-L2-SD401-02 LW07-L2- SD401-02-10C-02	LW07-L2-SD401-03 LW07-L2- SD401-03-10C-03	LW07-H1-SD401-02 LW07-H1- SD401-00-10C-02
Squilla empusa		-	-	<u>■</u>	-
Class: Maxillopoda		!			
Order: Sessilia		!			
Family: Balanoidea					
Balanus improvisus		-	-	-	-
Family: Balanomorpha		1			
Balanomorpha (LPIL)		-	-	-	-
Class: Entognatha					
Order: Collembola					
Family: Unspecified					T .
Collembola (LPIL)		-	-	-	-
Class: Unspecified					
Order: Unspecified					
Family: Unspecified					
Crustacea (LPIL)		-	-	-	-
Phylum: Mollusca					
Class: Gastropoda		1 1			
Order: Cephalaspidea					
Family: Cylichnidae					
Acteocina canaliculata		-	-	14	14
Acteocina sp.		-	-	-	-
Order: Heterostropha					
Family: Pyramidellidae					
Odostomia engonia		-	-	-	-
Order: Heterostropha		1			
Family: Pyramidellidae					
Turbonilla interrupta		-	-	-	-
Order: Neogastropoda					
Family: Columbellidae					
Astyris lunata		-	-	-	-
Nassarius vibex		-	-	-	-
Family: Conidae					
Pyrgocythara plicosa		-	-		<u>-</u>
Order: Neotaenioglossa					
Family: Calyptraeidae					
Crepidula fornicata		-	-	-	-
Crepidula plana			-	-	-
Order: Neotaenioglossa					
Family: Cerithiopsidae					
Cerithiopsis greenii		-	-	-	-
Order: Neotaenioglossa					
Family: Epitoniidae					
Epitonium rupicola		<u>-</u>	-	· —	-
Order: Unspecified		\$ \$			
Family: Unspecified					
Gastropoda (LPIL)		<u>-</u>	-	-	-
Class: Bivalvia					

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Prepared For: CH2M HILL Project: Navy Clean III

Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic Classification	Station Replicate Collection Date	LW03-SD558-03 LW03-SD558-03-10C 09/08/10	LW07-L2-SD401-02 LW07-L2- SD401-02-10C-02	LW07-L2-SD401-03 LW07-L2- SD401-03-10C-03	LW07-H1-SD401-02 LW07-H1- SD401-00-10C-02
Order: Arcoida	isk kontribus og av klassifik og fyrir og på til saft er propensjog ytt pluspyfi det	ры и 19-ты бөгө нь 46-ты 46-ты бөгөө тоосоор олон оролоо соосоо оролоо оролоо оролоо оролоо оролоо оролоо оролоо		PROPERTIES AND AND AND AND AND AND AND AND AND AND	THE PAPE TO SHARE AND SHARE OF THE PROPERTY OF THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE AND THE PAPE TO SHARE A
Family: Arcidae					
Anadara transversa		<u>-</u>	-	-	-
Order: Mytiloida					· ·
Family: Mytilidae					
Amygdalum papyrium		-	-		-
Order: Ostreoida					
Family: Anomiidae					
Anomia simplex		-	-	-	-
Order: Ostreoida		·			
Family: Anomiidae					
Pododesmus rudis		-	-	-	-
Order: Ostreoida					
Family: Ostreidae				,	1
Crassostrea virginica		-	-	-	
Order: Pholadomyoida					
Family: Lyonsiidae					
Lyonsia hyalina		-	-	-	-
Order: Veneroida					1
Family: Mactridae					
Mactridae (LPIL)		-	-	-	-
Mulinia lateralis		-	-	-	-
Mulinia lateralis		-	-	-	-
Family: Petricolidae					 
Petricolaria pholadiformis		•	-	-	-
Family: Solecurtidae					
Tagelus plebeius		-	-	-	! !
<i>Tagelus</i> sp.		_	-	-	· •
Family: Tellinidae		·			
Macoma tenta		_	=	14	-
Tellinidae (LPIL)		-	-	-	·
Family: Veneridae					
Gemma gemma		-	. <u>-</u>	-	- -
Order: Veneroida		:			
Family: Veneridae		:			
Mercenaria mercenaria		<u>-</u>	-	-	-
Order: Veneroida					;
Family: Veneridae					
Pitar sp.		_	-	14	t -
Veneridae (LPIL)		-	-	14	_
Order: Unspecified					
Family: Unspecified					
Bivalvia (LPIL)		· -	14	-	-
Phylum: Phoronida				- -	
Class: Unspecified				- - -	
Order: Unspecified					
Family: Unspecified					

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Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

2010

Taxonomic Classification	Station Replicate Collection Date	LW03-SD558-03 LW03-SD558-03-10C 09/08/10	LW07-L2-SD401-02 LW07-L2- SD401-02-10C-02	LW07-L2-SD401-03 LW07-L2- SD401-03-10C-03	LW07-H1-SD401-02 LW07-H1- SD401-00-10C-02
Phoronida (LPIL)		<b>→</b>	14	14	Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Commission de Co
Phylum: Echinodermata					
Class: Ophiuroidea					
Order: Unspecified					
Family: Unspecified					
Ophiuroidea (LPIL)		-	-	-	-
Phylum: Chordata					
Class: Cephalochordata					
Order: Amphioxiformes					
Family: Branchiostomatidae	)				
Branchiostoma sp.		-	-	*	-
No Organisms Present		✓	-	-	-
Total Organisms		14	517	1020	273
Total Taxa		N/A	11	15	4



Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic Classification	Station Replicate	LW07-H1-SD401-03 LW07-H1-SD401-00-10C-03	LW07-SD403-02 LW07-SD403-00-10C-02	LW07-SD403-03 LW07-SD403-00-10C-03
	Collection Date	09/10/10	09/11/10	09/11/10
Phylum: Porifera				
Class: Unspecified				
Order: Unspecified	1.			
Family: Unspecified	LB - ALVANDA			
Porifera (LPIL)		-	-	-
Phylum: Cnidaria	i		entrage control	
Class: Hydrozoa				
Order: Unspecified	[			
Family: Unspecified				
Hydrozoa (LPIL) Class: Anthozoa	i. daabaan	-	-	-
Order: Actiniaria				
Family: Unspecified	1000			
Actiniaria (LPIL)	2	_		
Actiniaria sp. A		_	_	-
Order: Unspecified			_	-
Family: Unspecified				
Anthozoa (LPIL)		_	•	_
Phylum: Nemertea				
Class: Unspecified	100			
Order: Unspecified	BOO 000			
Family: Unspecified	TAN LINE			
Nemertea (LPIL)		-	_	
Nemertea sp. A (LPIL)		-	•	-
Nemertea sp. B (LPIL)		-	_	-
Nemertea sp. C (LPIL)		-	-	-
Nemertea sp. D (LPIL)		-	-	-
Phylum: Annelida	1			
Class: Polychaeta	· constant			
Order: Aciculata	la de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de			
Family: Dorvilleidae	Canada Company			
Dorvillea (Schistomeringos) ru	dolphi	-	-	-
Dorvilleidae (LPIL)		-	-	•
Family: Eunicidae				
Marphysa sanguinea		-	-	-
Family: Glyceridae				
Glycera americana	out to the contract of	-	-	-
Glycera dibranchiata		-	-	-
Glycera sp.		-	-	-
Ophioglycera sp.		-	-	-
Family: Goniadidae Glycinde solitaria	1 100			
Family: Hesionidae	1 Telephone	<del>-</del>	-	
Gyptis crypta	are and a	14		
Hesionidae (LPIL)		-	=	-
Podarke obscura		- -	_	•
Family: Nereididae				-

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# Macroinvertebrate Results Data Per Square Meter (Unpooled)

Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic Classification	Station Replicate Collection Date	LW07-H1-SD401-03 LW07-H1-SD401-00-10C-03 09/10/10	LW07-SD403-02 LW07-SD403-00-10C-02 09/11/10	LW07-SD403-03 LW07-SD403-00-10C-03
Laeonereis culveri		•	-	
Neanthes succinea		-	-	-
Nereididae (LPIL)		-	-	-
Platynereis dumerilii		-	<u>-</u>	-
Family: Oenonidae			many quantum and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second a second and a second and a second and a second and a second and a second and a second and a second and a second and a second a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second and a second a second and a second and a second and	
Drilonereis longa		-	_	_
Family: Onuphidae			madeate of	
Diopatra cuprea		-	-	-
Family: Phyllodocidae				
Eteone sp.		-	_	-
Eumida sanguinea		-		-
Phyllodoce mucosa		-	_	-
Phyllodocidae (LPIL)		-	<u>-</u>	_
Family: Polynoidae				The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s
Lepidonotus sp.		-	<u>-</u>	_
Family: Syllidae				
Grubeosyllis clavata		-	-	-
Syllidae (LPIL)		-	_	_
Order: Canalipalpata				
Family: Ampharetidae			2	
Ampharetidae (LPIL)		-	_	-
Family: Chaetopteridae			7 A. I.	
Spiochaetopterus costarum		-	_	_
Family: Cirratulidae				TO LLA, TRANSPORT
Aphelochaeta sp.		-	_	-
Cirratulidae (LPIL)		-	- -	-
Tharyx sp.	Į.	-	14	115
Family: Pectinariidae				
Pectinaria gouldii		-	_	14
Pectinaria sp.		-	-	-
Family: Sabellidae				
Demonax microphthalmus		-	-	
Sabellaria vulgaris		-	-	_
Sabellidae (LPIL)		-	_	_
Sabellinae (LPIL)		-	_	-
Family: Serpulidae				
Hydroides dianthus		-	_	-
Family: Serpulidae				
Hydroides diathus		-	_	_
Family: Serpulidae				
Hydroides sp.		-	_	•
Serpulidae (LPIL)	İ	-	-	_
Family: Spionidae				
Apoprionospio pygmaea		-	-	<u>-</u>
Dipolydora cauleri		-	•	-
Dipolydora socialis		-	_	-
Marenzelleria viridis		<u>-</u>	-	-
			•	

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## Macroinvertebrate Results Data Per Square Meter (Unpooled)

Prepared For: CH2M HILL
Project: Navy Clean III
Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic Static Replica Classification Collection Da	le LW07-H1-SD401-00-10C-03	LW07-SD403-02 LW07-SD403-00-10C-02 09/11/10	LW07-SD403-03 LW07-SD403-00-10C-03
Minuspio sp.	ст да 1799 (1999 (1994 на стет и сооти и том поси и том поси от не се на на на на на на на на на на на на на	<ul> <li>dipologico de comunicación e a constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de constitución de co</li></ul>	Concentration Commission (Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commission Commiss
Paraprionospio pinnata	29	14	-
Polydora cornuta	14	-	-
Pseudopolydora sp.	-	-	-
Scolelepis texana	-	-	-
S <i>pio</i> sp.	-	-	-
Spionidae (LPIL)	-	-	-
Streblospio benedicti	287	57	402
Family: Terebellidae			
Loimia medusa	-	-	-
Loimia sp.	-	-	-
Pista cristata	-	-	-
Terebellidae (LPIL)	-	-	-
Order: Capitellida			
Family: Capitellidae			u proposition
Capitella capitata complex Blake	43	14	-
Capitella jonesi	-	-	-
Capitella sp.	-	-	-
Capitellidae (LPIL)	<u>-</u>	_	-
Heteromastus filiformis	•	_	-
Mediomastus ambiseta	14	14	172
Mediomastus californiensis	-	_	-
Mediomastus sp.	_	_	43
Order: Orbiniida			
Family: Orbiniidae			
Leitoscoloplos fragilis	_	-	-
Leitoscoloplos sp.	-	-	_
Orbiniidae (LPIL)	- -	_	-
Scolopios rubra	: -	_	_
Order: Phyllodocida			
Family: Pilargidae			
Sigambra tentaculata	14	<u>-</u>	_
Order: Unspecified			
Family: Maldanidae			
Clymenella torquata	- -	-	_
Class: Clitellata			
Order: Haplotaxida	2 4	2 1 2 2	
Family: Naididae		er region	
Paranais frici	<u>_</u>	_	_
Family: Tubificoid Naididae			
Tubificoid Naididae imm. w/o hair setae (LPIL	14	14	29
Tubificoides sp.	,		
Phylum: Arthropoda	1		
Class: Malacostraca			
Order: Amphipoda			
Family: Aoridae		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	
		_	
Aoridae (LPIL)	- -	-	

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RESEARCH, INC. 6821 SW Archer Road Gainesville, FL 32608 www.waterandair.com Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

2010

Taxonomic	Station Replicate	LW07-H1-SD401-03 LW07-H1-SD401-00-10C-03	LW07-SD403-02 LW07-SD403-00-10C-02	LW07-SD403-03 LW07-SD403-00-10C-03
Classification	Collection Date	09/10/10	09/11/10	09/11/10
Family: Corophiidae		ander a serial money over a lagran september annuels and comprove and another completely of the september and the compression of the compression and the compression and the compression and the compression and the compression and the compression and the compression and the compression and the compression and the compression and the compression and the compression and the compression and the compression and the compression and the compression and the compression and the compression and the compression and the compression and the compression and the compression and the compression and the compression and the compression and the compression and the compression and the compression and the compression and the compression and the compression and the compression and the compression and the compression and the compression and the compression and the compression and the compression and the compression and the compression and the compression and the compression and the 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COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR COLOR	PET STOCKHOOL SETTEMBER STEEL AND HELDE HELDE HELDE BEGINNE STANDER HELDE HELDE HELDE STEEL STANDE STANDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE STANDE HELDE 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Monocorophium acherusicum		-	_	-
Monocorophium insidiosum		-	-	-
Monocorophium sp.	aller e selvice e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e del la constante e del la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la constante e de la cons	-	-	14
Family: Liljeborgiidae	and the second			
Listriella clymenellae		-	<u>-</u>	-
Order: Cumacea				
Family: Bodotriidae	ļ			
Cyclaspis varians	1	-	_	-
Family: Leuconidae				
Leucon americanus		-	-	_
Family: Unspecified			1	
Cumacea (LPIL)	and the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of t	-	_	-
Order: Decapoda				
Family: Alpheidae				
Alpheus sp.		-	-	_
Family: Palaemonidae				
Palaemonetes sp.		_	<u>_</u>	_
Family: Panopeidae	f		1 3	-
Panopeidae (LPIL)		_	_	
Panopeus herbstii			_	-
Rhithropanopeus harrisii		_	-	<del>-</del>
Family: Pinnotheridae		<u>-</u>	· -	-
Pinnixa sp.				
Family: Portunidae		-	· -	-
Callinectes sp.				
Portunidae (LPIL)		-	-	-
Family: Unspecified		<u>-</u>	- -	-
Decapoda (LPIL)				
	1	<del>-</del>	-	=
Decapoda (zoea)		-	-	•
Decapoda zoea (larva)		-	-	-
Order: Isopoda				
Family: Idoteidae				
Edotia triloba		-	-	-
Order: Leptostraca				
Family: Unspecified				
Leptostraca (LPIL)		. <del>-</del>	-	-
Order: Mysida			1	
Family: Mysidae				
Americamysis bigelowi	ļ	14	-	-
Americamysis sp.		-	-	-
Mysidae (LPIL)		-	-	-
Neomysis americana		-	-	-
Family: Unspecified				
Mysidacea (LPIL)		-	-	-
Order: Stomatopoda				
Family: Squillidae				

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Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station Replicate	LW07-H1-SD401-03 LW07-H1-SD401-00-10C-03	LW07-SD403-02 LW07-SD403-00-10C-02	LW07-SD403-03 LW07-SD403-00-10C-03
Classification	Collection Date	09/10/10	09/11/10	09/11/10
Squilla empusa		-	<u> </u>	
Class: Maxillopoda				
Order: Sessilia				
Family: Balanoidea			vanova variati	
Balanus improvisus		-	-	-
Family: Balanomorpha				
Balanomorpha (LPIL)		-	-	-
Class: Entognatha				
Order: Collembola				
Family: Unspecified				
Collembola (LPIL)		-	-	-
Class: Unspecified			Company of the	
Order: Unspecified			a pren-con-	
Family: Unspecified				
Crustacea (LPIL)		<del>-</del>	-	-
Phylum: Mollusca				
Class: Gastropoda				
Order: Cephalaspidea	ļ			
Family: Cylichnidae  Acteocina canaliculata		4.4	20	
		14	29	-
Acteocina sp. Order: Heterostropha		-	-	•
Family: Pyramidellidae			do principal	
Odostomia engonia			in the second	
Order: Heterostropha		-	-	-
Family: Pyramidellidae				
Turbonilla interrupta		_	_	
Order: Neogastropoda		<del>-</del>	_	-
Family: Columbellidae				
Astyris Iunata		_	_	_
Nassarius vibex		_	_	_
Family: Conidae				
Pyrgocythara plicosa		_	-	-
Order: Neotaenioglossa			1	
Family: Calyptraeidae			3 TO THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND THE PERSON AND T	
Crepidula fornicata		-	_	-
Crepidula plana		<u>-</u>	-	_
Order: Neotaenioglossa				
Family: Cerithiopsidae				
Cerithiopsis greenii		-	-	-
Order: Neotaenioglossa				
Family: Epitoniidae				
Epitonium rupicola		-	-	-
Order: Unspecified				
Family: Unspecified				
Gastropoda (LPIL)		<del>-</del>	-	-
Class: Bivalvia				

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Gainesville, FL 32608 www.waterandair.com

# Macroinvertebrate Results Data Per Square Meter (Unpooled)

Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic	Station	LW07-H1-SD401-03	LW07-SD403-02	LW07-SD403-03
Classification	Replicate Collection Date	LW07-H1-SD401-00-10C-03 09/10/10	LW07-SD403-00-10C-02 09/11/10	LW07-SD403-00-10C-03 09/11/10
Order: Arcoida	egyaga arama ong punasak mon into unisar mon nakiran sakiran anakiran aramakan nakiran kan sakiran nakiran sak B			en l'en et l'alle le l'alle l'alle le le le le réché de des des le l'alle le le le l'alle le le le le le le le le le le le le
Family: Arcidae				
Anadara transversa		-	-	<b>-</b>
Order: Mytiloida				
Family: Mytilidae				
Amygdalum papyrium	* experience	-	-	_
Order: Ostreoida				
Family: Anomiidae				
Anomia simplex		-	} !	-
Order: Ostreoida				
Family: Anomiidae	:			
Pododesmus rudis		-	-	-
Order: Ostreoida				
Family: Ostreidae	1000			
Crassostrea virginica		-	-	
Order: Pholadomyoida Family: Lyonsiidae				***
Lyonsia hyalina		_	<u> </u>	A Parameter Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control o
Order: Veneroida		-	-	-
Family: Mactridae				
Mactridae (LPIL)		_	14	14
Mulinia lateralis			<u>'</u>	-
Mulinia lateralis		: :	<u>_</u>	_
Family: Petricolidae				
Petricolaria pholadiformis		<u>_</u>	_	-
Family: Solecurtidae				A PO'S
Tagelus plebeius		<del>-</del>	_	-
Tagelus sp.		-	_	-
Family: Tellinidae				
Macoma tenta		-	-	-
Tellinidae (LPIL)		-	-	_
Family: Veneridae				
Gemma gemma		-	-	-
Order: Veneroida				
Family: Veneridae				
Mercenaria mercenaria		-	-	-
Order: Veneroida				
Family: Veneridae		•		
Pitar sp.		-	-	-
Veneridae (LPIL)		14	-	14
Order: Unspecified				
Family: Unspecified				
Bivalvia (LPIL)		<u>-</u>	- 4	-
Phylum: Phoronida				
Class: Unspecified				
Order: Unspecified				\$ 2
Family: Unspecified				

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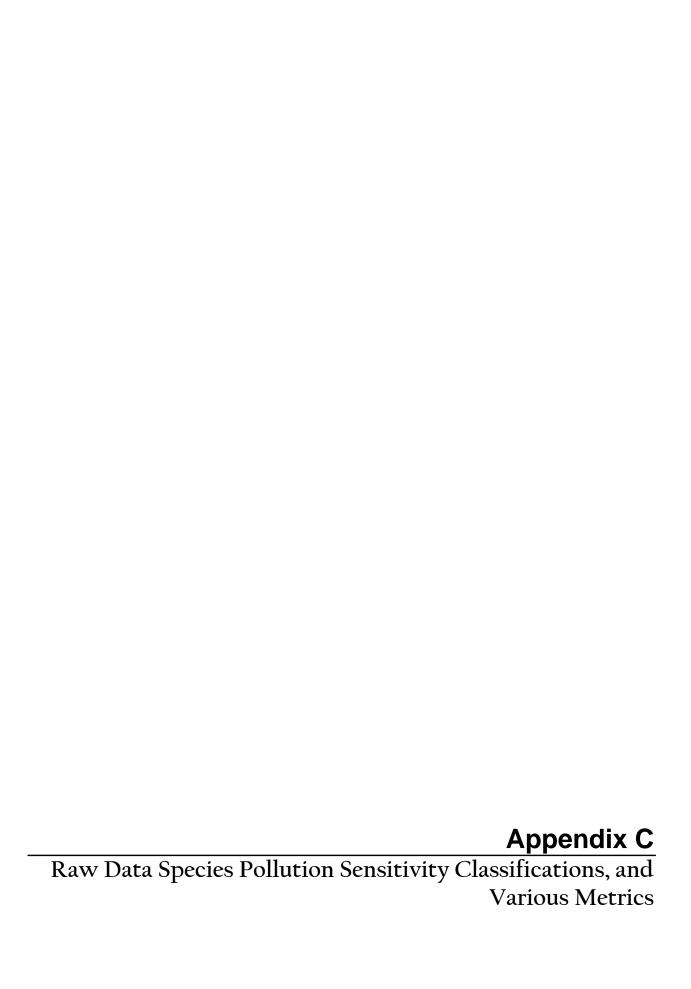
Prepared For: CH2M HILL Project: Navy Clean III Sample Group: Navy Clean Aug-Sept

2010

Sample Method: Petite Ponar (x3) Report Date: 11/08/2010

Taxonomic Classification	Station Replicate Collection Date	LW07-H1-SD401-03 LW07-H1-SD401-00-10C-03 09/10/10	LW07-SD403-02 LW07-SD403-00-10C-02 09/11/10	LW07-SD403-03 LW07-SD403-00-10C-03
Phoronida (LPIL) Phylum: Echinodermata Class: Ophiuroidea Order: Unspecified Family: Unspecified Ophiuroidea (LPIL)	THE CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR 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Andrew Andrew Andrew Andrew Andrew Andrew Andrew Andrew Andrew Andrew Andrew Andrew Andrew Andrew Andrew Andrew Andrew Andrew Andrew Andrew Andrew Andrew Andrew Andrew Andrew Andrew Andrew Andrew Andrew Andrew Andrew Andrew Andrew Andrew Andrew Andrew Andre	mentengan ja silata katan katan seria katan dalam katan katan katan katan katan katan katan katan katan katan k Energia silata katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan katan
Phylum: Chordata Class: Cephalochordata Order: Amphioxiformes Family: Branchiostomatidae Branchiostoma sp.	•	-	-	-
No Organisms Present		-	_	-
Total Organisms		474	172	819
Total Taxa		11	8	9

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ļ				5.0.0	LW03-SD501	LW03-SD502	LW03-SD503	LW03-SD504A	LW03-SD504
Phylum	Class	Order	Taxon	Pollution Classification	LW03-SD501-00-10C	LW03-SD502-00-10C	LW03-SD503-00-10C	LW03-SD504A-00-10C	LW03-SD504-00-10C
Porifera					09/02/2010	09/02/2010	09/02/2010	08/31/2010	08/30/2010
			Porifera (LPIL)		0	0	0	0	0
Cnidaria	Hydroz	oa							
	A 41		Hydrozoa (LPIL)		0	0	0	0	0
	Anthoz	oa	Actiniaria (LPIL)		0	1	0	0	0
			Actiniaria sp. A		0	0	0	0	0
Nemertea			Anthozoa (LPIL)		0	0	0	0	0
			Nemertea (LPIL)		2	0	1	0	0
			Nemertea sp. A (LPIL) Nemertea sp. B (LPIL)		0	0	0	0	0
			Nemertea sp. C (LPIL)		0	0	0	0	0
Annelide			Nemertea sp. D (LPIL)		0	0	0	0	0
Annelida	Polycha	l aeta							
			Dorvillea (Schistomeringos) rudolphi		0	0	0	0	0
			Dorvilleidae (LPIL) Marphysa sanguinea		0	0	0	0	0
			Glycera americana	PS, EQ	0	0	0	0	0
			Glycera dibranchiata Glycera sp.		0	0	0	0	0
			Ophioglycera sp.		1	0	0	0	0
			Glycinde solitaria	PS, OP	2 0	0	0	1 0	0
			Gyptis crypta Hesionidae (LPIL)		0	0	0	0	0
			Podarke obscura		1	0	0	1	0
			Laeonereis culveri Neanthes succinea	PI, OP	0	0	0	0	0
			Nereididae (LPIL)		6	1	0	0	0
			Platynereis dumerilii Drilonereis longa		0	0	0	0	0
			Diopatra cuprea	PS, EQ	0	0	0	0	0
			Eteone sp.		0	0	0	0	0
			Eumida sanguinea Phyllodoce mucosa		0	0	0	0	0
			Phyllodocidae (LPIL)		0	0	0	0	0
			Lepidonotus sp. Grubeosyllis clavata		0	0	0	0	0
			Syllidae (LPIL)		0	0	0	0	0
			Ampharetidae (LPIL) Spiochaetopterus costarum	PS	1 2	0 2	0	0 2	0
			Aphelochaeta sp.	F3	0	5	1	0	0
			Cirratulidae (LPIL)		1	0	0	0	0
			Tharyx sp. Pectinaria gouldii		0	0	0	0	0
			Pectinaria sp.		0	0	0	0	0
			Demonax microphthalmus Sabellaria vulgaris		0	4 0	0	0	0
			Sabellidae (LPIL)		0	1	0	0	0
			Sabellinae (LPIL) Hydroides dianthus		0	0	0	0	0
			Hydroides diathus		0	0	0	0	0
			Hydroides sp. Serpulidae (LPIL)		0	0 1	0	1 0	0
			Apoprionospio pygmaea		0	0	0	0	0
			Dipolydora cauleri		0	0	0	0	0
			Dipolydora socialis  Marenzelleria viridis	PS	0	0	0	0	0
			Minuspio sp.		0	0	0	0	0
			Paraprionospio pinnata Polydora cornuta	PI, OP PI, OP	0	0	0	0	0
			Pseudopolydora sp.	, 0.	0	0	0	0	0
			Scolelepis texana Spio sp.		0	0	0 3	0	0
			Spionidae (LPIL)		0	0	0	0	0
			Streblospio benedicti	PI, OP	1	0	1	2	0
			Loimia medusa Loimia sp.	PS	0	0	0 1	0	0
			Pista cristata		0	0	0	0	0
			Terebellidae (LPIL)  Capitella capitata complex Blake	PI, OP	7	2 0	0 3	0	0
			Capitella jonesi	PI, OP	0	0	0	0	0
			Capitella sp. Capitellidae (LPIL)	PI, OP	0	1 0	0	0	0
			Heteromastus filiformis	PI, OP	0	2	0	0	1
			Mediomastus ambiseta  Mediomastus californiensis	PS, PI, OP	5	0	0	4 0	0
			Mediomastus californiensis  Mediomastus sp.		1	4	1	1	0
			Leitoscoloplos fragilis	PI, OP	0	0	0	0	0
			Leitoscoloplos sp. Orbiniidae (LPIL)		0	0	0	0	0
			Scoloplos rubra		0	0	0	0	0
			Sigambra tentaculata Clymenella torquata	PS, EQ	0	0	0	0	0
	Clitellat	a	Symonomic torquata	. 0, LQ	Ü	J	, , , , , , , , , , , , , , , , , , ,	Ü	<u> </u>
			Paranais frici Tubificoid Naididae imm. w/o hair setae (LP	PI	0	0	0	0	0



	1	П		T	ı	ı	1	1	ı
Phylum	Class	Order	Taxon	Pollution	LW03-SD501 LW03-SD501-00-10C	LW03-SD502 LW03-SD502-00-10C	LW03-SD503 LW03-SD503-00-10C	LW03-SD504A LW03-SD504A-00-10C	LW03-SD504 LW03-SD504-00-10C
				Classification	09/02/2010	09/02/2010	09/02/2010	08/31/2010	08/30/2010
Arthropoda	Malacos	straca							
	Wataco	Amphipe	oda						
			Aoridae (LPIL)  Monocorophium acherusicum		0	0	0	0	0
			Monocorophium insidiosum		0	0	0	0	0
			Monocorophium sp. Listriella clymenellae	PS	0	0	0	0	0
		Cumace							
			Cyclaspis varians Leucon americanus		0	0	0	0	0
			Cumacea (LPIL)		0	0	0	0	0
		Decapoo	Alpheus sp.	PS, EQ?	0	0	0	0	0
			Palaemonetes sp.	,	0	0	0	0	0
			Panopeidae (LPIL) Panopeus herbstii		0	0	0	0	0
			Rhithropanopeus harrisii		0	0	0	0	0
			Pinnixa sp. Callinectes sp.		0	0	0	0	0
			Portunidae (LPIL)		0	0	0	0	0
			Decapoda (LPIL) Decapoda zoea (larva)		0	0	0	0	0
		Isopoda				_			
		Leptostr	Edotia triloba aca		0	0	0	0	0
			Leptostraca (LPIL)		0	0	0	0	0
		Mysida	Americamysis bigelowi		0	0	0	0	0
			Americamysis sp.		0	0	0	0	0
			Mysidae (LPIL) Neomysis americana		0	0	0	0	0
		~	Mysidacea (LPIL)		0	0	0	0	0
	<u></u>	Stomato	poda Squilla empusa	PS, EQ	0	0	0	0	0
	Maxillo								
		Sessilia	Balanus improvisus		0	0	0	0	0
	E	oths	Balanomorpha (LPIL)		1	2	0	0	0
	Entogna	atria	Collembola (LPIL)		0	0	0	0	0
	Unspec	ified	0 ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( (						
Mollusca			Crustacea (LPIL)		0	0	0	0	0
	Gastrop	oda	A stancing conditionate	DC	4	0	0	0	0
			Acteocina canaliculata Acteocina sp.	PS	0	0	0	0	0
			Odostomia engonia		0	1 0	0	0	0
			Turbonilla interrupta Astyris lunata		0	0	1	0	0
			Nassarius vibex		0	0	0	0	0
	<u></u>	<u> </u>	Pyrgocythara plicosa Crepidula fornicata		0 8	1 5	0	0	0
		_	Crepidula plana		2	0	0	0	0
			Cerithiopsis greenii Epitonium rupicola		0	1	0	0	0
	D: '		Gastropoda (LPIL)		0	1	0	0	0
	Bivalvia		Anadara transversa	PS, EQ	0	0	0	0	0
		_	Amygdalum papyrium		1 0	0	1 0	0	0
			Anomia simplex Pododesmus rudis		0	0	0	0	0
		_	Crassostrea virginica		0	0	0	0	0
			Lyonsia hyalina Mactridae (LPIL)		0	0	0	0	0
			Mulinia lateralis Petricolaria pholadiformis	OP	1 0	2 0	0	0	0
			Tagelus plebeius	EQ	0	0	0	0	0
			Tagelus sp. Macoma tenta	PS, EQ?	0 2	0	0	0	0
			Tellinidae (LPIL)		0	0	0	0	0
			Gemma gemma Mercenaria mercenaria	OP PS, EQ	6	5 0	2	0	0 2
			Pitar sp.	. 5, 24	0	0	0	0	0
			Veneridae (LPIL) Bivalvia (LPIL)		1 0	3	3	0	0
Phoronida									
Echinoderm	nata_		Phoronida (LPIL)		7	6	3	0	0
			Ophiuroidea (LPIL)		0	0	0	0	0
Chordata	<u></u>	<u> </u>	Branchiostoma sp.		0	0	0	0	0
								40	
	<u></u>	<u></u>	Total Raw Count Number of Taxa		60 22	53 23	23 13	13 8	3 2
		_	DS - Dollution Consisting Maintenance -1 10	0.7					
			PS = Pollution Sensitive, Weisberg et al, 19 PI = Polution Indicator, Weisberg et al. 1997						
		_	OP = Opportunistic, Ranasinghe et al. 1994 EQ = Equlibrium, Ranasinghe et al. 1994						
			? = Uncertanty due to taxonomic identification	on level					
		Metri	cs						
		ivietří	Total Raw Count		60	53	23	13	3
			Total Density (Number per Square Meter)	) 	862	761 23	330 13	187 8	43 2
			Number of Taxa Shannon Diversity Index (Base e)		22 2.755	23 2.91	13 2.442	8 1.925	0.637
			Shannon Diversity Index (Base 2)		3.975	4.198	3.523	2.777	0.918
							Co-it-II.		
			Name of Dominant Taxon		Crepidula fornicata	Phoronida (LPIL)	Capitella capitata complex Blake	Mediomastus ambiseta	Mercenaria mercenaria
			Percent Contribution of Dominant Taxon Density (No./Square Meter) Dominant Tax		13.33 115	11.32 86	13.04 43	30.77 57	66.67 29
			Percent Amphipods		0.00	0.00	0.00	0.00	0.00
			Percent Bivalves Percent Spionid Polychaetes		18.40 1.70	18.90 0.00	26.00 17.40	0.00 15.40	66.70 0.00
			Percent Mediomastus Polychaetes		10.00	7.55	13.05	38.46	0.00
<u> </u>			Percent Deposit Feeders		32.5	17.93	30.44	61.53	33.33



				Pollution	LW03-SD505	LW03-SD506	LW03-SD507	LW03-SD508	LW03-SD509
Phylum	Class	Order	Taxon	Classification	LW03-SD505-00-10C	LW03-SD506-00-10C	LW03-SD507-00-10C	LW03-SD508-00-10C	LW03-SD509-00-10C
					08/31/2010	09/10/2010	09/02/2010	09/10/2010	09/09/2010
Porifera									
			Porifera (LPIL)		1	0	0	0	0
Cnidaria									
	Hydroz	oa I	Hydrozoa (LPIL)		0	0	0	0	0
	Anthoz	na	Trydrozoa (Er 1E)		Ů	·	Ů	Ů	0
	7		Actiniaria (LPIL)		0	2	2	0	1
			Actiniaria sp. A		0	0	0	0	0
			Anthozoa (LPIL)		0	0	0	0	0
Nemertea			, ,						
			Nemertea (LPIL)		0	0	3	0	0
			Nemertea sp. A (LPIL)		0	0	0	0	0
			Nemertea sp. B (LPIL)		0	0	0	0	0
			Nemertea sp. C (LPIL)		0	0	0	0	0
			Nemertea sp. D (LPIL)		0	0	0	0	0
Annelida									
	Polycha	aeta	Danillas (Cahistamariagas) midalahi		0	0	0	0	0
			Dorvillea (Schistomeringos) rudolphi Dorvilleidae (LPIL)		0	0	0	0	0
			Marphysa sanguinea		0	0	0	0	0
			Glycera americana	PS, EQ	0	0	0	0	0
			Glycera dibranchiata	. 0, 24	0	1	0	0	0
			Glycera sp.		0	0	0	0	0
			Ophioglycera sp.		0	0	0	0	0
			Glycinde solitaria	PS, OP	0	1	1	1	0
			Gyptis crypta		0	2	0	0	0
			Hesionidae (LPIL)		0	0	0	0	0
			Podarke obscura		0	1	0	0	1
			Laeonereis culveri	<b></b>	0	0	0	0	0
			Neanthes succinea	PI, OP	0	0	0	1	2
			Nereididae (LPIL)		0	1	1	0	0
			Platynereis dumerilii		0	0	0	0	<u> </u>
			Drilonereis longa Diopatra cuprea	PS, EQ	0	0	0	0	0
			Eteone sp.	F 3, LQ	0	0	0	0	0
			Eumida sanguinea		0	0	0	0	0
			Phyllodoce mucosa		0	0	0	0	0
			Phyllodocidae (LPIL)		0	0	0	0	0
			Lepidonotus sp.		0	0	0	0	0
			Grubeosyllis clavata		0	0	0	0	0
			Syllidae (LPIL)		0	0	1	0	0
			Ampharetidae (LPIL)		0	0	0	0	0
			Spiochaetopterus costarum	PS	1	4	1	1	0
			Aphelochaeta sp.		0	0	5	0	0
			Cirratulidae (LPIL)		0	7	0	0	0
			Tharyx sp. Pectinaria gouldii		0	3	0	0	0
			Pectinaria spuldii		0	1	0	0	0
			Demonax microphthalmus		0	0	0	0	0
			Sabellaria vulgaris		0	0	0	0	0
			Sabellidae (LPIL)		0	0	0	0	0
			Sabellinae (LPIL)		0	0	0	0	0
			Hydroides dianthus		0	3	0	0	0
			Hydroides diathus		0	0	0	0	0
			Hydroides sp.		0	0	0	0	0
			Serpulidae (LPIL)		0	0	0	0	0
			Apoprionospio pygmaea		0	0	0	0	0
			Dipolydora cauleri		0	0	0	0	0
			Dipolydora socialis  Marenzelleria viridis	PS	0	0	0	0	1
			Minuspio sp.		0	0	0	0	0
			Paraprionospio pinnata	PI, OP	4	1	0	0	0
			Polydora cornuta	PI, OP	0	0	0	2	0
			Pseudopolydora sp.		0	0	0	0	0
			Scolelepis texana		0	0	0	0	0
			Spio sp.		0	0	0	0	0
			Spionidae (LPIL)		0	0	0	0	0
			Streblospio benedicti	PI, OP	1	0	2	9	1
			Loimia medusa	PS	0	0	0	0	0
			Loimia sp. Pista cristata		0	0	0	0	0
			Terebellidae (LPIL)		0	0	0	0	0
			Capitella capitata complex Blake	PI, OP	1	2	0	14	11
			Capitella jonesi	PI, OP	0	0	0	1	0
			Capitella sp.	PI, OP	0	0	0	0	0
			Capitellidae (LPIL)		0	0	0	0	0
			Heteromastus filiformis	PI, OP	0	0	0	1	0
			Mediomastus ambiseta	PS, PI, OP	1	5	3	0	0
			Mediomastus californiensis		0	0	0	0	0
			Mediomastus sp.		0	6	1	1	0
			Leitoscoloplos fragilis	PI, OP	0	0	0	0	0
			Leitoscoloplos sp.		0	0	0	0	0
	1		Orbiniidae (LPIL)		0	0	0	0	0
		ļ	Scoloplos rubra	1	0	0	0	0	0
			ISidambra tentaculata						
			Sigambra tentaculata Clymenella torquata	PS. EO	0	0	0	0	0
	Clitellat	a	Clymenella torquata	PS, EQ	0	0	0	0	0
	Clitellat	a	ŭ	PS, EQ	0	0	0	0	0
	Clitellat	a	Clymenella torquata						



Phylum	Class	Order	Taxon	Pollution Classification	LW03-SD505 LW03-SD505-00-10C 08/31/2010	LW03-SD506 LW03-SD506-00-10C 09/10/2010	LW03-SD507 LW03-SD507-00-10C 09/02/2010	LW03-SD508 LW03-SD508-00-10C 09/10/2010	LW03-SD509 LW03-SD509-00-10C 09/09/2010
Arthropoda									1.1.1.
	Malaco	straca Amphipe	nda						
		Zurbuib	Aoridae (LPIL)		0	0	0	0	0
			Monocorophium acherusicum		0	0	0	0	0
			Monocorophium insidiosum  Monocorophium sp.		0	0	0	0	0
		C	Listriella clymenellae	PS	0	0	0	0	0
		Cumace	a Cyclaspis varians		0	0	0	0	0
			Leucon americanus		0	0	0	0	0
		Decapoo	Cumacea (LPIL) da		0	1	0	0	0
			Alpheus sp.	PS, EQ?	0	0	0	0	0
			Palaemonetes sp. Panopeidae (LPIL)		0	0	0	0	0
			Panopeus herbstii		0	0	0	0	0
			Rhithropanopeus harrisii Pinnixa sp.		0	0	0	0	0
			Callinectes sp.		0	0	0	0	0
			Portunidae (LPIL)		0	0	0	0	0
			Decapoda (LPIL) Decapoda zoea (larva)		0	0	0	0	0
	_	Isopoda							
		Leptostr	Edotia triloba aca		0	0	0	0	0
			Leptostraca (LPIL)		0	0	0	0	0
		Mysida	Americamysis bigelowi		0	0	0	0	0
			Americamysis sp.		0	0	0	0	0
			Mysidae (LPIL) Neomysis americana		0	0	1 0	0	0
			Mysidacea (LPIL)		0	0	0	0	0
		Stomato		PS, EQ	0	0	0	0	0
	Maxillo	poda	Squilla empusa	ro, EQ	U	U		U	U
		Sessilia	Delegue imperiore						
			Balanus improvisus Balanomorpha (LPIL)		0	0	0	0	0
	Entogn	atha							
	Unspec	ified	Collembola (LPIL)		0	0	0	0	0
			Crustacea (LPIL)		0	0	0	0	0
Mollusca	Gastrop	ooda							
	Custio	u	Acteocina canaliculata	PS	0	1	0	0	0
			Acteocina sp. Odostomia engonia		0	0	0	0	0
			Turbonilla interrupta		0	1	0	0	0
			Astyris lunata		0	0	0	0	0
			Nassarius vibex Pyrgocythara plicosa		0	0 4	0	0	0
			Crepidula fornicata		0	17	0	0	3
			Crepidula plana Cerithiopsis greenii		0	0	0	0	0
			Epitonium rupicola		0	0	0	0	0
	Bivalvia		Gastropoda (LPIL)		0	0	1	0	0
	DIVAIVI		Anadara transversa	PS, EQ	0	1	0	0	0
			Amygdalum papyrium		0	0	0	0	0
			Anomia simplex Pododesmus rudis		0	0	0	0	<u> </u>
			Crassostrea virginica		0	0	0	0	1
			Lyonsia hyalina Mactridae (LPIL)		0	0	0	0	0
			Mulinia lateralis	OP	0	0	0	2	0
			Petricolaria pholadiformis  Tagelus plebeius	EQ	0	0	0	0	0
			Tagelus sp.	PS, EQ?	0	0	0	0	0
			Macoma tenta Tellinidae (LPIL)		0	0	0	0	0
			Gemma gemma	OP	1	4	2	1	60
			Mercenaria mercenaria	PS, EQ	0	0	0	2 0	1 0
			Pitar sp. Veneridae (LPIL)		1	12	0	0	1
Dharani			Bivalvia (LPIL)		0	0	3	0	1
Phoronida			Phoronida (LPIL)	<u> </u>	8	26	12	3	0
Echinoderm	nata								
Chordata			Ophiuroidea (LPIL)		0	0	0	0	0
			Branchiostoma sp.		0	0	2	0	1
			Total Raw Count		19	107	43	39	93
			Number of Taxa		9	24	18	13	18
			PS = Pollution Sensitive, Weisberg et al, 19	197					
			PI = Polution Indicator, Weisberg et al. 1997	7					
			OP = Opportunistic, Ranasinghe et al. 1994						
			PQ = Equlibrium, Ranasinghe et al. 1994  ? = Uncertanty due to taxonomic identificati	on level					
		10							
		Metri	Total Raw Count		19	107	43	39	93
			Total Density (Number per Square Meter	)	273	1537	618	560	1336
			Number of Taxa Shannon Diversity Index (Base e)		9 1.777	24 2.593	18 2.522	13 2.018	18 1.497
			Shannon Diversity Index (Base e) Shannon Diversity Index (Base 2)		2.564	2.593 3.741	3.638	2.018 2.911	2.16
									<u></u>
			N 75		De 11 // Em.	Dhara 11 man	Dk 11 // 5***	Charles	0
			Name of Dominant Taxon Percent Contribution of Dominant Taxon		Phoronida (LPIL) 42.11	Phoronida (LPIL) 24.30	Phoronida (LPIL) 27.91	Streblospio benedicti 23.08	Gemma gemma 64.52
			Density (No./Square Meter) Dominant Ta		115	374	172	129	862
			Percent Amphipods Percent Bivalves		0.00	0.00	0.00	0.00 7.70	0.00 67.80
			Percent Spionid Polychaetes		26.30	0.90	4.70	28.20	2.20
			Percent Mediomastus Polychaetes Percent Deposit Feeders		5.26 26.32	10.28 25.23	9.31 13.95	2.56 60.26	0.00 15.06
L			I croem pehosu reeders	1	20.32	20.23	13.35	00.20	10.00



-									
				Pollution	LW03-SD510	LW03-SD511	LW03-SD512	LW03-SD513	LW03-SD514
Phylum	Class	Order	Taxon	Classification	LW03-SD510-00-10C	LW03-SD511-00-10C	LW03-SD512-00-10C	LW03-SD513-00-10C	LW03-SD514-00-10C
					08/31/2010	08/31/2010	09/02/2010	09/10/2010	09/10/2010
Porifera									
			Porifera (LPIL)		0	0	0	0	0
Cnidaria	Hydroz	<u> </u>							
	nyaroz	l I	Hydrozoa (LPIL)		0	0	0	0	0
	Anthoz	na na	Trydrozoa (Er IE)		0	Ů	Ů		0
	7	<u> </u>	Actiniaria (LPIL)		0	0	0	0	0
			Actiniaria sp. A		0	0	0	0	0
			Anthozoa (LPIL)		0	0	0	0	0
Nemertea									
			Nemertea (LPIL)		0	1	0	0	0
			Nemertea sp. A (LPIL)		0	0	0	0	0
			Nemertea sp. B (LPIL)		0	0	0	0	0
			Nemertea sp. C (LPIL)		0	0	0	0	0
			Nemertea sp. D (LPIL)		0	0	0	0	0
Annelida	Dahaah								
	Polycha	aeta I	Dorvillea (Schistomeringos) rudolphi		0	0	0	0	0
			Dorvilleidae (LPIL)		0	0	0	0	0
			Marphysa sanguinea		0	0	0	0	0
			Glycera americana	PS, EQ	0	0	0	0	0
			Glycera dibranchiata		0	0	0	0	0
			Glycera sp.		0	0	0	0	0
			Ophioglycera sp.		0	0	0	0	0
			Glycinde solitaria	PS, OP	0	2	1	0	0
			Gyptis crypta		0	0	0	0	0
	1		Hesionidae (LPIL)		0	0	0	0	0
			Podarke obscura		0	0	0	0	1
			Laeonereis culveri	DI OD	0	0	0	0	0
	1		Neanthes succinea	PI, OP	0	0	0	0	0
			Nereididae (LPIL) Platynereis dumerilii		0	0	0	0	0
-			Drilonereis dumeniii Drilonereis longa		0	0	0	0	0
			Diopatra cuprea	PS, EQ	0	0	0	0	0
			Eteone sp.	. 0, 24	0	0	0	0	0
			Eumida sanguinea		0	0	0	0	0
			Phyllodoce mucosa		0	0	0	0	0
			Phyllodocidae (LPIL)		0	0	0	0	0
			Lepidonotus sp.		0	0	0	0	0
			Grubeosyllis clavata		0	0	0	0	0
			Syllidae (LPIL)		0	0	0	0	0
			Ampharetidae (LPIL)		0	0	0	0	0
			Spiochaetopterus costarum	PS	1	5	0	0	2
			Aphelochaeta sp. Cirratulidae (LPIL)		0	0	0	0	0
			Tharyx sp.		2	0	0	0	0
			Pectinaria gouldii		0	1	0	0	0
			Pectinaria sp.		0	0	0	0	0
			Demonax microphthalmus		0	0	0	0	0
			Sabellaria vulgaris		0	0	0	0	0
			Sabellidae (LPIL)		1	0	0	0	0
			Sabellinae (LPIL)		0	0	1	0	0
			Hydroides dianthus		0	0	0	0	0
			Hydroides diathus		0	0	0	0	0
			Hydroides sp.		0	0	0	0	0
			Serpulidae (LPIL)		0	0	0	0	1
			Apoprionospio pygmaea Dipolydora cauleri		0	0	0	0	0
			Dipolydora socialis		0	0	0	0	0
			Marenzelleria viridis	PS	0	0	0	0	0
			Minuspio sp.	-	0	0	0	0	0
			Paraprionospio pinnata	PI, OP	8	10	4	0	0
			Polydora cornuta	PI, OP	0	2	0	1	0
	1		Pseudopolydora sp.		0	0	1	0	0
	1		Scolelepis texana		0	0	0	0	0
	1		Spio sp.		0	0	0	0	0
			Spionidae (LPIL)	DI OD	0	0	0	0	0
<u> </u>			Streblospio benedicti Loimia medusa	PI, OP PS	5 0	0	1 0	0	4 0
	-		Loimia medusa Loimia sp.	го	1	0	0	3	0
			Pista cristata		0	0	0	0	0
			Terebellidae (LPIL)		0	0	0	0	0
			Capitella capitata complex Blake	PI, OP	0	0	0	15	5
			Capitella jonesi	PI, OP	0	0	0	0	0
			Capitella sp.	PI, OP	0	0	0	0	0
			Capitellidae (LPIL)		0	0	0	0	0
			Heteromastus filiformis	PI, OP	0	0	0	0	0
			Mediomastus ambiseta	PS, PI, OP	2	0	0	0	0
			Mediomastus californiensis		0	0	0	0	0
			Mediomastus sp.	<b></b>	0	0	0	0	0
	1		Leitoscoloplos fragilis	PI, OP	0	0	0	0	0
-			Leitoscoloplos sp.		0	0	0	0	0
			Orbiniidae (LPIL) Scoloplos rubra		0	0	0	0	0
	1		Sigambra tentaculata		0	0	0	0	0
			Clymenella torquata	PS, EQ	0	0	0	0	0
	Clitellat	a		, , ,			· · · · · · · · · · · · · · · · · · ·		-
			Paranais frici		0	0	0	0	0
			Tubificoid Naididae imm. w/o hair setae (LP	PI	0	0	0	0	0
			Tubificoides sp.		0	0	0	0	0



				Dellistics.	LW03-SD510	LW03-SD511	LW03-SD512	LW03-SD513	LW03-SD514
Phylum	Class	Order	Taxon	Pollution Classification	LW03-SD510-00-10C 08/31/2010	LW03-SD511-00-10C 08/31/2010	LW03-SD512-00-10C 09/02/2010	LW03-SD513-00-10C 09/10/2010	LW03-SD514-00-10C 09/10/2010
Arthropoda	Malacos	straca							
	Walacos	Amphipo							
			Aoridae (LPIL) Monocorophium acherusicum		0	0	0	0	0
			Monocorophium insidiosum  Monocorophium sp.		0	0	0	0	0
		Cumace	Listriella clymenellae	PS	0	0	0	0	0
		Guinage	Cyclaspis varians		0	0	0	0	0
			Leucon americanus Cumacea (LPIL)		0	0	0	0	0
		Decapoo	Alpheus sp.	PS, EQ?	0	0	0	0	0
			Palaemonetes sp.	. 0, 24.	0	0	0	0	0
			Panopeidae (LPIL) Panopeus herbstii		0	0	0	0	0
			Rhithropanopeus harrisii Pinnixa sp.		0	0	0	0	0
			Callinectes sp.		0	0	0	0	0
			Portunidae (LPIL) Decapoda (LPIL)		0	0	0	0	0
		Isopoda	Decapoda zoea (larva)		0	0	0	0	0
		•	Edotia triloba		0	0	0	0	0
		Leptostr	aca Leptostraca (LPIL)		0	0	0	0	0
		Mysida	Americamysis bigelowi		0	0	0	0	0
			Americamysis sp.		0	0	0	0	0
			Mysidae (LPIL) Neomysis americana		0	0	0	0	0
		Stomato	Mysidacea (LPIL) poda		0	0	0	0	0
	8.6		Squilla empusa	PS, EQ	0	0	0	0	0
	Maxillo	ooda Sessilia							
			Balanus improvisus Balanomorpha (LPIL)		0	0	0	0	0
	Entogna	atha							
	Unspec	ified	Collembola (LPIL)		0	0	0	0	0
Mollusca			Crustacea (LPIL)		0	0	0	0	0
	Gastrop	oda	Acteocina canaliculata	PS	0	7	0	0	0
			Acteocina sp.		0	0	0	0	0
			Odostomia engonia Turbonilla interrupta		0	0	0	0	0
			Astyris lunata Nassarius vibex		0	0	0	0	0
			Pyrgocythara plicosa		0	0	0	0	0
			Crepidula fornicata Crepidula plana		0	0	0	0	0
			Cerithiopsis greenii Epitonium rupicola		0	0	0	0	0
			Gastropoda (LPIL)		0	2	0	0	0
	Bivalvia	l .	Anadara transversa	PS, EQ	0	0	0	0	0
			Amygdalum papyrium Anomia simplex		0	0	0	0	0
			Pododesmus rudis		0	0	0	0	0
			Crassostrea virginica Lyonsia hyalina		0	0	0	0	0
			Mactridae (LPIL) Mulinia lateralis	OP	0	0	0	0	0
			Petricolaria pholadiformis		0	0	0	0	0
			Tagelus plebeius Tagelus sp.	EQ PS, EQ?	0	0	0	0	0
			Macoma tenta Tellinidae (LPIL)		0	2	0	0	0
			Gemma gemma	OP BS EO	0	0	0	0	0
			Mercenaria mercenaria Pitar sp.	PS, EQ	0	0	0	0	0
			Veneridae (LPIL) Bivalvia (LPIL)		2 0	5 0	0	0	0
Phoronida			Phoronida (LPIL)		4	20	0	1	0
Echinoderm	nata								
Chordata			Ophiuroidea (LPIL)		0	0	0	0	0
			Branchiostoma sp.		0	0	0	0	0
			Total Raw Count		27	59	9	21	13
			Number of Taxa		10	13	6	5	5
			PS = Pollution Sensitive, Weisberg et al, 19 PI = Polution Indicator, Weisberg et al. 1997						
			OP = Opportunistic, Ranasinghe et al. 1994						
			EQ = Equlibrium, Ranasinghe et al. 1994 ? = Uncertanty due to taxonomic identification	on level					
		Metri	cs						
			Total Raw Count Total Density (Number per Square Meter		27	59 848	9	21	13 187
			Number of Taxa		388 10	848 13	129 6	302 5	187 5
			Shannon Diversity Index (Base e) Shannon Diversity Index (Base 2)		2.022 2.917	2.074 2.992	1.581 2.281	0.953 1.375	1.413 2.038
			,					21. <del>5</del>	
			Name of Dominant Taxon		Paraprionospio pinnata	Phoronida (LPIL)	Paraprionospio pinnata	Capitella capitata complex Blake	Capitella capitata complex Blake
			Percent Contribution of Dominant Taxon		29.63	33.90	44.44	71.43	38.46
			Density (No./Square Meter) Dominant Ta: Percent Amphipods	xon	0.00	287 0.00	57 0.00	216 0.00	72 0.00
			Percent Bivalves Percent Spionid Polychaetes		7.40 48.10	11.90 20.30	0.00 66.70	0.00 4.80	0.00 30.80
			Percent Mediomastus Polychaetes		7.41	0.00	0.00	0.00	0.00
			Percent Deposit Feeders	l	46.3	17.79	38.89	83.33	61.54



-								T	
			_	Pollution	LW03-SD515	LW03-SD516	LW03-SD517	LW03-SD518	LW03-SD519
Phylum	Class	Order	Taxon	Classification	LW03-SD515-00-10C	LW03-SD516-00-10C	LW03-SD517-00-10C	LW03-SD518-00-10C	LW03-SD519-00-10C
Dif					09/09/2010	09/09/2010	08/31/2010	08/31/2010	09/02/2010
Porifera			Porifera (LPIL)		0	0	1	1	0
Cnidaria			T Officia (EF IE)		0	Ů	'		Ŭ
	Hydroz	oa							
			Hydrozoa (LPIL)		0	0	0	0	0
	Anthoz	oa							
			Actiniaria (LPIL)		0	0	0	0	0
			Actiniaria sp. A Anthozoa (LPIL)		0	0	0	0	0
Nemertea			Antilozoa (Erit)		0	0	0	0	U U
			Nemertea (LPIL)		2	0	0	0	0
			Nemertea sp. A (LPIL)		0	0	0	0	0
			Nemertea sp. B (LPIL)		0	0	0	0	0
			Nemertea sp. C (LPIL)		0	0	0	0	0
Annelida			Nemertea sp. D (LPIL)		0	0	0	0	0
Annenua	Polycha	eta							
	,		Dorvillea (Schistomeringos) rudolphi		0	0	0	0	0
			Dorvilleidae (LPIL)		0	0	0	0	0
			Marphysa sanguinea		0	0	0	0	0
			Glycera americana	PS, EQ	0	0	0	0	0
			Glycera dibranchiata		0	0	0	0	0
	<b>†</b>		Glycera sp. Ophioglycera sp.		0	0	0	0	0
	<b>†</b>		Glycinde solitaria	PS, OP	3	5	0	0	0
			Gyptis crypta		0	0	0	0	0
			Hesionidae (LPIL)	· · · · · ·	0	0	0	0	0
	<b></b>		Podarke obscura		1	0	0	0	0
	<del>                                     </del>		Laeonereis culveri	DI OD	0	0	0	0	0
	<del>                                     </del>		Neanthes succinea Nereididae (LPIL)	PI, OP	0	0	0	0	0
	<u> </u>		Platynereis dumerilii		1	0	0	0	0
	<u> </u>		Drilonereis longa		0	0	0	0	0
			Diopatra cuprea	PS, EQ	0	0	0	0	1
			Eteone sp.		0	0	0	0	0
			Eumida sanguinea		0	0	0	0	0
			Phyllodoce mucosa		0	0	0	0	0
			Phyllodocidae (LPIL) Lepidonotus sp.		0	0	0	0	0
			Grubeosyllis clavata		0	0	0	0	0
			Syllidae (LPIL)		0	0	0	0	0
			Ampharetidae (LPIL)		0	0	0	0	0
			Spiochaetopterus costarum	PS	1	0	0	0	2
			Aphelochaeta sp.		0	0	0	0	0
			Cirratulidae (LPIL) Tharyx sp.		0	0	0	0	0
			Pectinaria gouldii		0	0	0	0	0
			Pectinaria sp.		0	0	0	0	0
			Demonax microphthalmus		0	0	0	0	0
			Sabellaria vulgaris		0	0	0	0	0
			Sabellidae (LPIL)		0	0	0	0	0
			Sabellinae (LPIL) Hydroides dianthus		0	0	0	0	0
			Hydroides diathus		0	0	0	0	0
			Hydroides sp.		0	0	0	0	0
			Serpulidae (LPIL)		0	0	0	0	0
			Apoprionospio pygmaea		0	0	0	0	0
	-		Dipolydora cauleri		0	0	0	0	0
	<del>                                     </del>		Dipolydora socialis  Marenzelleria viridis	PS	0 1	0	0	0	0
	<del>                                     </del>		Minuspio sp.	гЭ	0	0	0	0	0
			Paraprionospio pinnata	PI, OP	2	0	0	0	3
			Polydora cornuta	PI, OP	1	0	0	0	0
			Pseudopolydora sp.		0	0	0	0	2
	-		Scolelepis texana		0	1	0	0	0
	1		Spio sp. Spionidae (LPIL)		0	0	0	0	0
	<del>                                     </del>		Streblospio benedicti	PI, OP	5	1	0	0	0
			Loimia medusa	PS	0	0	0	0	0
			Loimia sp.		0	0	0	0	0
			Pista cristata		0	0	0	0	0
			Terebellidae (LPIL)	51.55	0	0	0	0	0
	-		Capitella capitata complex Blake	PI, OP PI, OP	2	2	0	0	0
	<b>†</b>		Capitella jonesi Capitella sp.	PI, OP PI, OP	0	0	0	0	0
			Capitellidae (LPIL)	, 01	0	0	0	0	0
			Heteromastus filiformis	PI, OP	0	1	0	0	0
			Mediomastus ambiseta	PS, PI, OP	0	0	0	0	0
	<b>_</b>		Mediomastus californiensis		0	0	0	0	0
	<del>                                     </del>		Mediomastus sp.	DI OD	0	1	0	0	0
	1		Leitoscoloplos fragilis Leitoscoloplos sp.	PI, OP	0	0	0	0	0
	<u> </u>		Orbiniidae (LPIL)		0	0	0	0	0
			Scoloplos rubra		0	0	0	0	0
			Sigambra tentaculata		0	0	0	0	0
-			Clymenella torquata	PS, EQ	0	0	0	0	0
	Clitellat	a				_	_		_
	-		Paranais frici Tubificoid Naididae imm. w/o hair setae (LP	PI	0	0	0	0	0
	<del>                                     </del>		Tubificoides sp.	rt	0	0	0	0	0
<u> </u>	<u> </u>	1				<u>,                                     </u>		<u>,                                     </u>	, ,



1				I	LW00 0D545	LW00 OD540	LW00 0D547	LW00 0D540	LW00 OD540
Phylum	Class	Order	Taxon	Pollution Classification	LW03-SD515 LW03-SD515-00-10C	LW03-SD516 LW03-SD516-00-10C	LW03-SD517 LW03-SD517-00-10C	LW03-SD518 LW03-SD518-00-10C	LW03-SD519 LW03-SD519-00-10C
A = 4 h = 2 h = 4 h				Olassincation	09/09/2010	09/09/2010	08/31/2010	08/31/2010	09/02/2010
Arthropoda	Malacos	straca							
		Amphipo	Aoridae (LPIL)		1	0	0	0	0
			Monocorophium acherusicum		0	0	0	0	0
			Monocorophium insidiosum  Monocorophium sp.		0	0	0	0	0
			Listriella clymenellae	PS	0	0	0	0	0
		Cumace	a Cyclaspis varians		0	0	0	0	0
			Leucon americanus		0	0	0	0	0
		Decapoo	Cumacea (LPIL)		0	0	0	0	0
		Бесарос	Alpheus sp.	PS, EQ?	0	0	0	0	0
			Palaemonetes sp. Panopeidae (LPIL)		0	0	0	0	0
			Panopeus herbstii		0	0	0	0	0
			Rhithropanopeus harrisii Pinnixa sp.		0	0	0	0	0
			Callinectes sp.		0	0	0	0	0
			Portunidae (LPIL) Decapoda (LPIL)		0	0	0	0 2	0
			Decapoda zoea (larva)		0	0	0	0	0
		Isopoda	Edotia triloba		0	0	0	0	0
		Leptostr	аса		Ů				
		Mysida	Leptostraca (LPIL)		0	0	0	0	0
		, 5144	Americamysis bigelowi		0	0	0	0	0
			Americamysis sp. Mysidae (LPIL)		0	0	0	0	0
			Neomysis americana		0	0	0	0	0
		Stomato	Mysidacea (LPIL) poda		0	0	0	0	0
			Squilla empusa	PS, EQ	0	0	0	0	0
	Maxillo	poda Sessilia							
			Balanus improvisus		0	0	0	0	0
	Entogna	l atha	Balanomorpha (LPIL)		0	0	0	0	0
			Collembola (LPIL)		0	0	0	0	0
	Unspec	ified	Crustacea (LPIL)		0	0	0	0	0
Mollusca	_		,					-	-
	Gastrop	ooda	Acteocina canaliculata	PS	0	1	0	0	0
			Acteocina sp.		0	0	0	0	0
			Odostomia engonia Turbonilla interrupta		0	0	0	0	0
			Astyris lunata		0	0	0	0	0
			Nassarius vibex Pyrgocythara plicosa		0	0	0	0	0
			Crepidula fornicata		0	0	0	0	0
			Crepidula plana Cerithiopsis greenii		0	0	0	0	0
			Epitonium rupicola		0	0	0	0	0
	Bivalvia	l	Gastropoda (LPIL)		0	0	0	0	0
			Anadara transversa	PS, EQ	0	0	0	0	0
			Amygdalum papyrium Anomia simplex		0	0	0	0	0
			Pododesmus rudis		0	0	0	0	0
			Crassostrea virginica Lyonsia hyalina		0	0	0	0	0
			Mactridae (LPIL)	OD	0	0	0	0	0
			Mulinia lateralis Petricolaria pholadiformis	OP	0	0	0	0	0
			Tagelus plebeius Tagelus sp.	EQ PS, EQ?	0	0	0	0	0
			Macoma tenta	ro, EQ!	0	0	0	0	0
			Tellinidae (LPIL) Gemma gemma	OP	0	1 17	0	0	0
			Mercenaria mercenaria	PS, EQ	0	0	0	0	0
			Pitar sp. Veneridae (LPIL)		0	0 2	0	0	0
			Bivalvia (LPIL)		1	0	0	0	0
Phoronida			Phoronida (LPIL)		4	4	0	0	0
Echinoderm	nata		,						
Chordata		<u> </u>	Ophiuroidea (LPIL)		0	0	0	0	0
			Branchiostoma sp.		0	0	0	0	0
			Total Raw Count		26	39	2	4	8
			Number of Taxa		14	14	2	3	4
			PS = Pollution Sensitive, Weisberg et al, 19	97					
			PI = Polution Indicator, Weisberg et al. 1997 OP = Opportunistic, Ranasinghe et al. 1994	7					
			OP = Opportunistic, Ranasinghe et al. 1994 EQ = Equlibrium, Ranasinghe et al. 1994						
			? = Uncertanty due to taxonomic identification	on level					
	<u> </u>	Metri	cs	<u> </u>					
			Total Raw Count Total Density (Number per Square Meter	\	26 374	39 560	2	4	8
			Number of Taxa	,	374 14	560 14	29 2	57 3	115 4
			Shannon Diversity Index (Base e) Shannon Diversity Index (Base 2)		2.449 3.533	2.009 2.898	0.693	1.04 1.5	1.321
			onamion Diversity muex (Base 2)		3.533	2.098	1	6.1	1.906
							Porifera (LPIL)/ Gemma		
			Name of Dominant Taxon  Percent Contribution of Dominant Taxon		Streblospio benedicti 19.23	Gemma gemma 43.59	gemma 50.00	Decapoda (LPIL) 50.00	Paraprionospio pinnata 37.50
			Density (No./Square Meter) Dominant Taxon		19.23 72	43.59 244	50.00 14	29	37.50 43
			Percent Amphipods Percent Bivalves		3.80 3.80	0.00 0.00	0.00	0.00 0.00	0.00
			Percent Spionid Polychaetes		34.60	5.10	0.00	0.00	62.50
			Percent Mediomastus Polychaetes Percent Deposit Feeders		0.00 34.61	2.56 14.11	0.00	0.00 25	0.00 43.75
			1 Groom Deposit Feeders	l	34.01	14.11	U	20	43.75



	1	I			LW03-SD520	LW03-SD521	LW03-SD522	LW03-SD523	LW03-SD525
Phylum	Class	Order	Taxon	Pollution Classification	LW03-SD520-00-10C	LW03-SD521-00-10C	LW03-SD522-00-10C	LW03-SD523-00-10C	LW03-SD525-00-10C
				Classification	09/10/2010	09/12/2010	09/09/2010	09/09/2010	09/02/2010
Porifera			Porifera (LPIL)		0	1	0	0	0
Cnidaria			Folileia (LFIL)		0	ı	U	Ü	Ü
	Hydroz	oa							_
	Anthoz	na na	Hydrozoa (LPIL)		0	0	0	0	0
	Antiloz	<u> </u>	Actiniaria (LPIL)		0	0	0	0	0
			Actiniaria sp. A		0	0	0	0	0
Nemertea			Anthozoa (LPIL)		0	0	0	0	0
Nemertea			Nemertea (LPIL)		0	0	0	0	0
			Nemertea sp. A (LPIL)		0	0	0	0	0
			Nemertea sp. B (LPIL)		0	0	0	0	0
			Nemertea sp. C (LPIL)  Nemertea sp. D (LPIL)		0	0	0	0	0
Annelida									
	Polycha	aeta	Denille (Ochistana sin na c) mulalahi						
			Dorvillea (Schistomeringos) rudolphi Dorvilleidae (LPIL)		0	0	0	0	0
			Marphysa sanguinea		3	0	0	0	0
			Glycera americana	PS, EQ	0	0	0	0	0
			Glycera dibranchiata Glycera sp.		0	0	0	0	0
			Ophioglycera sp.		0	0	0	0	0
			Glycinde solitaria	PS, OP	0	0	3	4	0
			Gyptis crypta Hesionidae (LPIL)		4	0	0	0	0
			Podarke obscura		13	0	0	2	0
			Laeonereis culveri		0	0	0	2	0
			Neanthes succinea  Nereididae (LPIL)	PI, OP	1 0	0	0	7	0
			Platynereis dumerilii		0	0	0	1	0
			Drilonereis longa		0	0	0	0	0
			Diopatra cuprea	PS, EQ	0	0	0	0	0
			Eteone sp.  Eumida sanguinea		0	0	0	0	0
			Phyllodoce mucosa		0	0	0	0	0
			Phyllodocidae (LPIL)		0	0	0	0	0
			Lepidonotus sp. Grubeosyllis clavata		0	0	0	0	0
			Syllidae (LPIL)		0	0	0	0	0
			Ampharetidae (LPIL)		0	0	0	0	0
			Spiochaetopterus costarum  Aphelochaeta sp.	PS	3 0	2	1 0	0 1	0
			Cirratulidae (LPIL)		0	1	1	2	0
			Tharyx sp.		0	0	0	0	0
			Pectinaria gouldii Pectinaria sp.		0	0	0	2	0
			Demonax microphthalmus		0	0	0	0	0
			Sabellaria vulgaris		0	0	0	0	0
			Sabellidae (LPIL) Sabellinae (LPIL)		0	0	0	0	0
			Hydroides dianthus		0	2	0	1	0
			Hydroides diathus		0	0	0	0	0
			Hydroides sp.		0	0	0	3	0
			Serpulidae (LPIL) Apoprionospio pygmaea		0	0	0	0	0
			Dipolydora cauleri		2	0	0	0	0
			Dipolydora socialis	P0	0	0	0	0	0
			Marenzelleria viridis Minuspio sp.	PS	0	0	0	0	0
			Paraprionospio pinnata	PI, OP	0	2	2	2	0
			Polydora cornuta	PI, OP	4	2	0	2	0
			Pseudopolydora sp. Scolelepis texana		0	0	0	0	0
			Spio sp.		0	0	0	0	0
			Spionidae (LPIL)	DI 07	1	0	0	1	0
			Streblospio benedicti Loimia medusa	PI, OP PS	14	4 0	14 0	0	0
			Loimia sp.	. 0	0	0	0	0	0
			Pista cristata		5	2	0	0	0
			Terebellidae (LPIL) Capitella capitata complex Blake	PI, OP	7	0 15	2 1	0 47	0
			Capitella jonesi	PI, OP	2	1	2	3	0
			Capitella sp.	PI, OP	0	0	0	0	0
			Capitellidae (LPIL)	PI, OP	0	0	0	0	0
			Heteromastus filiformis Mediomastus ambiseta	PS, PI, OP	7	0	0	0	0
			Mediomastus californiensis		0	0	0	0	0
			Mediomastus sp.	DI OF	3	0	1	5	0
			Leitoscoloplos fragilis Leitoscoloplos sp.	PI, OP	0	0	0	0	0
			Orbiniidae (LPIL)		0	0	0	0	0
			Scoloplos rubra		0	0	1	0	0
			Sigambra tentaculata Clymenella torquata	PS, EQ	0	0	0	0 1	0
	Clitellat	a	- J	. 5, 15					
			Paranais frici		0	0	0	0	0
			Tubificoid Naididae imm. w/o hair setae (LF Tubificoides sp.	PI	0 25	0	0	0	0
	Î	<u> </u>	. asmoorace ap.	1		<u> </u>	· · · · · · · · · · · · · · · · · · ·	<u> </u>	· · · · · · · · · · · · · · · · · · ·



	1	П	I	T	T	I	I	I	
Phylum	Class	Order	Taxon	Pollution	LW03-SD520 LW03-SD520-00-10C	LW03-SD521 LW03-SD521-00-10C	LW03-SD522 LW03-SD522-00-10C	LW03-SD523 LW03-SD523-00-10C	LW03-SD525 LW03-SD525-00-10C
·				Classification	09/10/2010	09/12/2010	09/09/2010	09/09/2010	09/02/2010
Arthropoda	Malaco	straca							
	Walaco	Amphip	oda						
			Aoridae (LPIL)  Monocorophium acherusicum		0 2	0	0	1 0	0
			Monocorophium insidiosum		1	0	0	0	0
			Monocorophium sp. Listriella clymenellae	PS	13	0	0	0	0
		Cumace	a						
			Cyclaspis varians Leucon americanus		0	0	0	0	0
			Cumacea (LPIL)		0	0	0	0	0
		Decapoo	Alpheus sp.	PS, EQ?	0	0	0	0	0
			Palaemonetes sp.	,	0	0	0	1	0
			Panopeidae (LPIL) Panopeus herbstii		1 0	0	0	1	0
			Rhithropanopeus harrisii		0	0	0	2	0
			Pinnixa sp. Callinectes sp.		0	0	0	0 1	0
			Portunidae (LPIL)		0	0	0	0	0
			Decapoda (LPIL) Decapoda zoea (larva)		0	0	0	0	0
		Isopoda							
		Leptostr	Edotia triloba		0	0	0	0	0
			Leptostraca (LPIL)		0	0	0	0	0
		Mysida	Americamysis bigelowi		0	0	0	0	0
			Americamysis sp.		0	0	0	0	0
			Mysidae (LPIL) Neomysis americana		0	0	0	0	0
			Mysidacea (LPIL)		0	0	0	0	0
		Stomato	poda Squilla empusa	PS, EQ	0	0	0	0	0
	Maxillo			-, -~	-	-	-	-	-
		Sessilia	Balanus improvisus		0	0	0	3	0
			Balanomorpha (LPIL)		0	1	0	0	0
	Entogn	atha	Collembola (LPIL)		0	1	0	0	0
	Unspec	ified							
Mollusca			Crustacea (LPIL)		0	0	0	0	0
	Gastrop	ooda							
			Acteocina canaliculata Acteocina sp.	PS	0	0	0	0	0
			Odostomia engonia		0	0	0	0	0
			Turbonilla interrupta Astyris lunata		0	0	0	0	0
			Nassarius vibex		0	0	0	0	0
			Pyrgocythara plicosa Crepidula fornicata		0	0	0	0 4	0
			Crepidula plana		0	0	0	0	0
			Cerithiopsis greenii Epitonium rupicola		0	0	0	0	0
			Gastropoda (LPIL)		0	0	0	0	0
	Bivalvia	1	Anadara transversa	PS, EQ	0	0	0	0	0
			Amygdalum papyrium	-,	0	0	0	0	0
			Anomia simplex Pododesmus rudis		0	0	0	0	0
			Crassostrea virginica		0	0	0	1	0
			Lyonsia hyalina Mactridae (LPIL)		0	0	0	0	0
			Mulinia lateralis	OP	0	0	0	0	0
			Petricolaria pholadiformis  Tagelus plebeius	EQ	0	0	0	0	0
			Tagelus sp.	PS, EQ?	0	0	0	3	0
			Macoma tenta Tellinidae (LPIL)		0	0	0	0	0
			Gemma gemma	OP	0	0	2	15	0
			Mercenaria mercenaria Pitar sp.	PS, EQ	0	0	0	0	0
			Veneridae (LPIL)	-	0	1	1	4	0
Phoronida			Bivalvia (LPIL)		0	1	2	2	0
Echinoderm	nata		Phoronida (LPIL)		0	0	17	9	0
Lemmodern	iaia		Ophiuroidea (LPIL)		0	0	0	0	0
Chordata			Branchiostoma sp.		0	0	0	0	0
						-			
			Total Raw Count Number of Taxa		115 20	40 18	53 17	138 35	0
					20	.0	.,,	33	J
			PS = Pollution Sensitive, Weisberg et al, 19 PI = Polution Indicator, Weisberg et al. 1997						
			OP = Opportunistic, Ranasinghe et al. 1994						
			EQ = Equlibrium, Ranasinghe et al. 1994 ? = Uncertanty due to taxonomic identification	on level					
		Metri	CS Total Raw Count		115	40	53	138	0
			Total Density (Number per Square Meter	) 	1652	575	761	1983	0
			Number of Taxa Shannon Diversity Index (Base e)		20 2.57	18 2.361	17 2.171	35 2.725	0
			Shannon Diversity Index (Base 2)		3.708	3.407	3.133	3.931	0
			Name of Dominant Taxon		Tubificoides sp.	Capitella capitata complex Blake	Phoronida (LPIL)	Capitella capitata complex Blake	N/A
			Percent Contribution of Dominant Taxon		21.74	37.50	32.08	34.06	0
			Density (No./Square Meter) Dominant Tax Percent Amphipods	xon	359 13.90	216 0.00	244 1.90	675 0.70	0.00
			Percent Bivalves		0.00	5.00	9.50	18.10	0.00
			Percent Spionid Polychaetes Percent Mediomastus Polychaetes		18.30 8.70	20.00 0.00	30.20 1.89	3.60 3.62	0.00
			Percent Deposit Feeders		52.61	61.25	31.13	49.28	0



	l			<u> </u>	LW03-SD526	LW03-SD527	LW03-SD528	LW03-SD529	LW03-SD530
Phylum	Class	Order	Taxon	Pollution Classification	LW03-SD526-00-10C	LW03-SD527 LW03-SD527-00-10C	LW03-SD528 LW03-SD528-00-10C	LW03-SD529 LW03-SD529-00-10C	LW03-SD530-00-10C
				Classification	09/10/2010	09/12/2010	09/09/2010	09/09/2010	09/02/2010
Porifera			Porifera (LPIL)		1	1	0	0	0
Cnidaria			Politera (LPIL)		ı	I	0	U	0
	Hydroz	oa							
	Anthoz	22	Hydrozoa (LPIL)		0	0	0	1	0
	Anthoz	oa	Actiniaria (LPIL)		0	37	0	7	0
			Actiniaria sp. A		0	0	0	1	0
Nemertea			Anthozoa (LPIL)		0	1	0	0	0
Nemertea			Nemertea (LPIL)		0	0	1	0	0
			Nemertea sp. A (LPIL)		0	0	0	0	0
			Nemertee sp. B (LPIL)		0	0	0	0	0
			Nemertea sp. C (LPIL)  Nemertea sp. D (LPIL)		0	0	0	0	0
Annelida									
	Polycha	aeta	Dorvillea (Schistomeringos) rudolphi		0	1	0	0	0
			Dorvilleidae (LPIL)		0	0	0	0	0
			Marphysa sanguinea		0	0	0	0	0
			Glycera americana Glycera dibranchiata	PS, EQ	0	0	0	0	0
			Glycera sp.		0	0	0	0	0
			Ophioglycera sp.		0	0	0	0	0
			Glycinde solitaria Gyptis crypta	PS, OP	0	0	0	3	0
			Gyptis crypta Hesionidae (LPIL)		0	0	0	0	0
			Podarke obscura		0	3	0	5	0
			Laeonereis culveri	DI OD	0	0	0	0	0
			Neanthes succinea  Nereididae (LPIL)	PI, OP	0	0	0	0	0
			Platynereis dumerilii		0	0	0	0	0
			Drilonereis longa	D0 50	0	0	0	0	0
			Diopatra cuprea  Eteone sp.	PS, EQ	0	0	0	0	0
			Eumida sanguinea		0	0	0	0	0
			Phyllodoce mucosa		0	0	0	0	0
			Phyllodocidae (LPIL) Lepidonotus sp.		0	0	0	0	0
			Grubeosyllis clavata		0	0	0	0	0
			Syllidae (LPIL)		0	0	0	0	0
			Ampharetidae (LPIL) Spiochaetopterus costarum	PS	0	0 1	0 2	0	0
			Aphelochaeta sp.	10	0	0	0	0	0
			Cirratulidae (LPIL)		0	0	0	4	0
			Tharyx sp. Pectinaria gouldii		0	0	0	4 3	0
			Pectinaria sp.		0	0	0	0	0
			Demonax microphthalmus		0	8	0	2	0
			Sabellaria vulgaris Sabellidae (LPIL)		0	0 2	0	0	0
			Sabellinae (LPIL)		0	0	0	0	0
			Hydroides dianthus		0	0	0	0	0
			Hydroides diathus Hydroides sp.		0	0 2	0	0	0
			Serpulidae (LPIL)		0	0	0	0	0
			Apoprionospio pygmaea		0	0	0	0	0
			Dipolydora cauleri Dipolydora socialis		0	0	0	0	0
			Marenzelleria viridis	PS	0	0	0	0	0
			Minuspio sp.	<b>5.</b>	0	0	0	0	0
			Paraprionospio pinnata Polydora cornuta	PI, OP PI, OP	0	0 4	3 0	0 9	0
			Pseudopolydora sp.	, ৩:	0	0	0	0	0
			Scolelepis texana		0	0	0	0	0
			Spio sp. Spionidae (LPIL)		0	0	0	0	0
			Streblospio benedicti	PI, OP	3	0	0	3	0
			Loimia medusa	PS	0	0	0	0	0
			Loimia sp. Pista cristata		0	0	0	0	0
			Terebellidae (LPIL)		0	0	0	3	0
			Capitella capitata complex Blake	PI, OP	0	9	0	2	0
			Capitella jonesi	PI, OP	0	0	0	0	0
			Capitella sp. Capitellidae (LPIL)	PI, OP	0	0	0	0 2	0
			Heteromastus filiformis	PI, OP	0	0	0	1	0
			Mediomastus ambiseta	PS, PI, OP	0	0	0	0	0
			Mediomastus californiensis  Mediomastus sp.		0	0	0	0 9	0
			Leitoscoloplos fragilis	PI, OP	0	0	0	0	0
			Leitoscoloplos sp.		0	0	0	0	0
			Orbiniidae (LPIL) Scoloplos rubra		0	0	0	1 2	0
			Sigambra tentaculata		0	0	0	0	0
	0		Clymenella torquata	PS, EQ	0	0	0	1	0
	Clitellat	a	Paranais frici		0	0	0	0	0
	t		Tubificoid Naididae imm. w/o hair setae (LP	PI	0	0	0	0	0
			` `		0		0	0	0



				<u> </u>	LW03-SD526	LW03-SD527	LW03-SD528	LW03-SD529	LW03-SD530
Phylum	Class	Order	Taxon	Pollution Classification	LW03-SD526-00-10C 09/10/2010	LW03-SD527-00-10C 09/12/2010	LW03-SD528-00-10C	LW03-SD529-00-10C	LW03-SD530-00-10C 09/02/2010
Arthropoda					US/ 1U/ZU1U	U9/12/2UTU	09/09/2010	09/09/2010	U9/U2/2U1U
	Malacos	straca Amphipo	oda						
			Aoridae (LPIL)		0	0	0	0	0
			Monocorophium acherusicum  Monocorophium insidiosum		0	0	0	0	0
			Monocorophium sp. Listriella clymenellae	PS	0	0	0	0	0
		Cumace	a						
			Cyclaspis varians Leucon americanus		0	0	0	0	0
		Decapoo	Cumacea (LPIL)		0	0	0	0	0
		Бесарос	Alpheus sp.	PS, EQ?	0	0	0	0	0
			Palaemonetes sp. Panopeidae (LPIL)		0	0	0	0	0
			Panopeus herbstii		0	0	0	0	0
			Rhithropanopeus harrisii Pinnixa sp.		0	0	0	0	0
			Callinectes sp. Portunidae (LPIL)		0	0	0	0	0
			Decapoda (LPIL) Decapoda zoea (larva)		0	0	0	1 0	0
		Isopoda							
		Leptostr	Edotia triloba aca		0	0	0	0	0
			Leptostraca (LPIL)		0	0	0	0	0
		Mysida	Americamysis bigelowi		0	0	0	0	0
			Americamysis sp. Mysidae (LPIL)		0	0	0	0	0
			Neomysis americana		0	0	0	0	0
		Stomato	Mysidacea (LPIL) poda		0	0	0	0	0
	Mavilla		Squilla empusa	PS, EQ	0	0	0	0	0
	Maxillo	Sessilia							
			Balanus improvisus Balanomorpha (LPIL)		0	0	0	0	0
	Entogna	atha	Collembola (LPIL)		0	0	0	0	0
	Unspec	ified			0	0	0	0	U
Mollusca			Crustacea (LPIL)		0	0	0	0	0
	Gastrop	oda		P.0					
			Acteocina canaliculata Acteocina sp.	PS	0	0	0	0	0
			Odostomia engonia Turbonilla interrupta		0	0	0	0	0
			Astyris lunata		0	0	0	0	0
			Nassarius vibex Pyrgocythara plicosa		0	0	0	0	0
			Crepidula fornicata Crepidula plana		0	0	0	5 2	0
			Cerithiopsis greenii		0	0	0	0	0
			Epitonium rupicola Gastropoda (LPIL)		0	0	0	0	0
	Bivalvia	l	Anadara transversa	PS, EQ	0	0	0	0	0
			Amygdalum papyrium	FO, EQ	0	0	0	0	0
			Anomia simplex Pododesmus rudis		0	0	0	0	0
			Crassostrea virginica Lyonsia hyalina		0	0	0	0	0
			Mactridae (LPIL)		0	0	0	0	0
			Mulinia lateralis Petricolaria pholadiformis	OP	0	0	0	0	0
			Tagelus plebeius	EQ	0	0	0	0	0
			Tagelus sp. Macoma tenta	PS, EQ?	0	0	0	0	0
			Tellinidae (LPIL) Gemma gemma	OP	0	0	0	8 31	0
			Mercenaria mercenaria	PS, EQ	0	0	0	3	0
			Pitar sp. Veneridae (LPIL)		0	0	0	36	0
Phoronida			Bivalvia (LPIL)		0	0	0	5	0
Echinoderm	nata		Phoronida (LPIL)		0	0	1	11	0
	iaid		Ophiuroidea (LPIL)		0	0	0	0	0
Chordata			Branchiostoma sp.		0	0	0	0	0
			Total Raw Count		4	70	7	168	0
			Number of Taxa		2	12	4	30	0
			PS = Pollution Sensitive, Weisberg et al, 19	97					
			PI = Polution Indicator, Weisberg et al. 1997 OP = Opportunistic, Ranasinghe et al. 1994	7					
			EQ = Equlibrium, Ranasinghe et al. 1994						
			? = Uncertanty due to taxonomic identification	on level					
l		Metri	•	I		70	~	400	^
			Total Raw Count Total Density (Number per Square Meter	)	4 57	70 1006	7 101	168 2414	0
			Number of Taxa Shannon Diversity Index (Base e)		2 0.562	12 1.654	4 1.277	30 2.793	0
			Shannon Diversity Index (Base 2)		0.811	2.386	1.842	4.029	0
			Name of Dominant Taxon		Streblospio benedicti	Actiniaria (LPIL)	Paraprionospio pinnata	Vereridae (LPIL)	N/A
			Percent Contribution of Dominant Taxon Density (No./Square Meter) Dominant Tax		75.00 43	52.86 532	42.86 43	21.43 517	0
			Percent Amphipods		0.00	0.00	0.00	0.00	0.00
			Percent Bivalves Percent Spionid Polychaetes		0.00 75.00	0.00 5.70	0.00 42.90	49.50 7.10	0.00
	Percent Mediomastus Polychaetes			0.00 37.5	0.00 16.43	0.00 35.71	5.36 21.13	0.00	
	Percent Deposit Feeders			1					·



					1				
				Pollution	LW03-SD533	LW03-SD534-01	LW03-SD535	LW03-SD537	LW03-SD538
Phylum	Class	Order	Taxon	Classification	LW03-SD533-00-10C	LW03-SD534-01-10C	LW03-SD535-00-10C	LW03-SD537-00-10C	LW03-SD538-00-10C
					09/01/2010	09/01/2010	09/01/2010	09/01/2010	09/01/2010
Porifera									
			Porifera (LPIL)		0	0	1	0	0
Cnidaria	Unidada								
	Hydroz	oa	Hydrozoa (LPIL)		0	0	0	0	0
	Anthoz	na	Trydrozoa (Er 12)		•		Ů	Ů	
	7		Actiniaria (LPIL)		0	0	0	0	0
			Actiniaria sp. A		0	0	0	0	0
			Anthozoa (LPIL)		0	0	0	0	0
Nemertea			, ,						
			Nemertea (LPIL)		0	0	2	0	0
			Nemertea sp. A (LPIL)		0	0	0	0	0
			Nemertea sp. B (LPIL)		0	0	0	0	0
			Nemertea sp. C (LPIL)		0	0	0	0	0
			Nemertea sp. D (LPIL)		0	0	0	0	0
Annelida									
	Polycha	ieta	Denvilles (Cabiatamania asa) mudalahi		0	0	1	0	0
			Dorvillea (Schistomeringos) rudolphi Dorvilleidae (LPIL)		0	0	0	0	0
			Marphysa sanguinea		0	0	0	0	0
			Glycera americana	PS, EQ	0	0	0	0	0
			Glycera dibranchiata	. 0, 20	0	0	0	0	0
			Glycera sp.		0	0	0	0	0
			Ophioglycera sp.		0	0	0	0	0
			Glycinde solitaria	PS, OP	0	0	19	0	0
			Gyptis crypta		0	0	8	0	0
			Hesionidae (LPIL)		0	0	0	0	0
			Podarke obscura		0	0	10	0	0
			Laeonereis culveri	<b></b>	0	0	0	0	0
			Neanthes succinea	PI, OP	0	0	0	0	0
			Nereididae (LPIL)		0	0	0	0	0
			Platynereis dumerilii		0	0	0	0	0
			Drilonereis longa Diopatra cuprea	PS, EQ	0	0	0	0	0
			Eteone sp.	F 3, LQ	0	0	0	0	0
			Eumida sanguinea		0	0	0	0	0
			Phyllodoce mucosa		0	0	1	0	0
			Phyllodocidae (LPIL)		0	0	1	0	0
			Lepidonotus sp.		0	0	0	0	0
			Grubeosyllis clavata		0	0	0	0	0
			Syllidae (LPIL)		0	0	0	0	0
			Ampharetidae (LPIL)		0	0	0	0	0
			Spiochaetopterus costarum	PS	0	0	0	0	0
			Aphelochaeta sp.		0	0	0	0	0
			Cirratulidae (LPIL)		0	0	1	0	0
			Tharyx sp. Pectinaria gouldii		0	0	0	0	0
			Pectinaria sp.		0	0	0	0	0
			Demonax microphthalmus		0	0	5	0	0
			Sabellaria vulgaris		0	0	0	0	0
			Sabellidae (LPIL)		0	0	0	0	0
			Sabellinae (LPIL)		0	0	0	0	0
			Hydroides dianthus		0	0	0	0	0
			Hydroides diathus		0	0	5	0	0
			Hydroides sp.		0	0	1	0	0
			Serpulidae (LPIL)		0	0	0	0	0
			Apoprionospio pygmaea		0	0	0	0	0
			Dipolydora cauleri		0	0	0	0	0
			Dipolydora socialis  Marenzelleria viridis	PS	0	0	0	0	0
			Minuspio sp.		0	0	0	0	0
			Paraprionospio pinnata	PI, OP	3	0	0	0	0
			Polydora cornuta	PI, OP	0	0	0	0	0
			Pseudopolydora sp.		0	0	0	0	0
			Scolelepis texana		0	0	0	0	0
			Spio sp.		0	0	0	0	0
			Spionidae (LPIL)		0	0	0	0	0
			Streblospio benedicti	PI, OP	4	0	1	1	0
			Loimia medusa	PS	0	0	4	0	0
			Loimia sp. Pista cristata		0	0	0	0	0
			Terebellidae (LPIL)		0	0	1	0	0
			Capitella capitata complex Blake	PI, OP	0	0	0	0	0
			Capitella jonesi	PI, OP	0	0	0	0	0
			Capitella sp.	PI, OP	0	0	0	0	0
			Capitellidae (LPIL)		0	0	0	0	0
			Heteromastus filiformis	PI, OP	0	0	0	0	0
			Mediomastus ambiseta	PS, PI, OP	0	0	3	0	0
			Mediomastus californiensis		0	0	1	0	0
			Mediomastus sp.		0	0	4	0	0
			Leitoscoloplos fragilis	PI, OP	0	0	0	0	0
			Leitoscoloplos sp.		0	0	0	0	0
	<u> </u>		Orbiniidae (LPIL)		0	0	0	0	0
			Scoloplos rubra Sigambra tentaculata		0	0	0	0	0
	1		Clymenella torquata	PS, EQ	0	0	0	0	0
				- ,			<u> </u>		
	Clitellat	a							Į.
	Clitellat	a	Paranais frici		0	0	0	0	0
	Clitellat	a 		PI	0	0	0	0	0



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Phylum	Class	Order	Taxon	Pollution	LW03-SD533 LW03-SD533-00-10C	LW03-SD534-01 LW03-SD534-01-10C	LW03-SD535 LW03-SD535-00-10C	LW03-SD537 LW03-SD537-00-10C	LW03-SD538 LW03-SD538-00-10C
				Classification	09/01/2010	09/01/2010	09/01/2010	09/01/2010	09/01/2010
Arthropoda	Malacos	straca							
	Wataco	Amphipe	oda						
			Aoridae (LPIL)  Monocorophium acherusicum		0	0	0	0	0
			Monocorophium insidiosum		0	0	0	0	0
			Monocorophium sp. Listriella clymenellae	PS	0	0	0	0	0
		Cumace							
			Cyclaspis varians Leucon americanus		0	0	0	0	0
			Cumacea (LPIL)		0	0	0	0	0
		Decapoo	Alpheus sp.	PS, EQ?	0	0	0	0	0
			Palaemonetes sp.	,	0	0	0	0	0
			Panopeidae (LPIL) Panopeus herbstii		0	0	0	0	0
			Rhithropanopeus harrisii		0	0	1	0	0
			Pinnixa sp. Callinectes sp.		0	0	0	0	0
			Portunidae (LPIL)		0	0	0	0	0
			Decapoda (LPIL) Decapoda zoea (larva)		0	0	0	0	0
		Isopoda					_		
		Leptostr	Edotia triloba aca		0	0	0	0	0
		·	Leptostraca (LPIL)		0	0	0	0	0
		Mysida	Americamysis bigelowi		0	0	0	0	0
			Americamysis sp.		0	0	0	0	0
			Mysidae (LPIL) Neomysis americana		0	0	0	0	0
		C.	Mysidacea (LPIL)		0	0	0	0	0
		Stomato	poda Squilla empusa	PS, EQ	0	0	0	0	0
	Maxillo								
		Sessilia	Balanus improvisus		0	0	0	0	0
	E	aths	Balanomorpha (LPIL)		0	0	0	0	0
	Entogna	atria	Collembola (LPIL)		0	0	0	0	0
	Unspec	ified	0 (4.80)						
Mollusca	<u></u>	<u> </u>	Crustacea (LPIL)		0	0	0	0	0
	Gastrop	oda	A stancing conclinate	DC	0	0	4	0	0
			Acteocina canaliculata Acteocina sp.	PS	0	0	0	0	0
			Odostomia engonia		0	0	0	0	0
			Turbonilla interrupta Astyris lunata		0	0	0	0	0
			Nassarius vibex		0	0	0	0	0
			Pyrgocythara plicosa Crepidula fornicata		0	0	0 4	0	0
			Crepidula plana		0	0	0	0	0
			Cerithiopsis greenii Epitonium rupicola		0	0	0	0	0
	B		Gastropoda (LPIL)		0	0	0	0	0
	Bivalvia	1	Anadara transversa	PS, EQ	0	0	1	0	0
			Amygdalum papyrium		0	0	0	0	0
			Anomia simplex Pododesmus rudis		0	0	0	0	0
			Crassostrea virginica		0	0	0	0	0
			Lyonsia hyalina Mactridae (LPIL)		0	0	0	0	0
			Mulinia lateralis	OP	0	0	3	0	0
			Petricolaria pholadiformis Tagelus plebeius	EQ	0	0	0	0	0
			Tagelus sp. Macoma tenta	PS, EQ?	0	0	1 0	0	0
			Tellinidae (LPIL)		0	0	0	0	0
			Gemma gemma Mercenaria mercenaria	OP PS, EQ	0	0	3 2	0	0
			Pitar sp.	1 U, EW	0	0	0	0	0
			Veneridae (LPIL) Bivalvia (LPIL)		0	0	12 0	0	0
Phoronida									
Echinoderm	 nata		Phoronida (LPIL)		2	0	11	0	0
			Ophiuroidea (LPIL)		0	0	0	0	0
Chordata			Branchiostoma sp.		0	0	0	0	0
			Total Raw Count Number of Taxa		10	0	110 30	1	0
				0.7					
			PS = Pollution Sensitive, Weisberg et al, 19 PI = Polution Indicator, Weisberg et al. 1997						
			OP = Opportunistic, Ranasinghe et al. 1994						
	<u></u>		EQ = Equlibrium, Ranasinghe et al. 1994 ? = Uncertanty due to taxonomic identification	on level					
		Metri							
		IVIETI	Total Raw Count		10	0	110	1	0
			Total Density (Number per Square Meter)	)	144	0	1580	14	0
			Number of Taxa Shannon Diversity Index (Base e)		1.28	0	30 2.908	0	0
			Shannon Diversity Index (Base 2)		1.846	0	4.195	0	0
			Name of Dominant Taxon		Streblospio benedicti	N/A	Glycinda solitara	Streblospio benedicti	N/A
			Percent Contribution of Dominant Taxon		40.00	0	17.12	100.00	0
			Density (No./Square Meter) Dominant Tax Percent Amphipods	AUII	57 0.00	0.00	271 0.00	0.00	0.00
			Percent Bivalves Percent Spionid Polychaetes		10.00 70.00	0.00	33.30 0.90	0.00 100.00	0.00
			Percent Mediomastus Polychaetes		0.00	0.00	0.00	0.00	0.00
			Percent Deposit Feeders		35	0	13.51	50	0



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Phylum	Class	Order	Taxon	Pollution	LW03-SD539 LW03-SD539-00-10C	LW03-SD540 LW03-SD540-00-10C	LW03-SD541 LW03-SD541-00-10C	LW03-SD543 LW03-SD543-00-10C	LW03-SD544 LW03-SD544-00-10C
,	0.000	0.00.		Classification	09/01/2010	09/01/2010	09/07/2010	09/01/2010	09/01/2010
Porifera									
			Porifera (LPIL)		0	0	0	0	0
Cnidaria	Hydroz	02							
	riyurozi		Hydrozoa (LPIL)		0	0	0	0	0
	Anthoz	oa							
			Actiniaria (LPIL)		0	0	0	0	0
			Actiniaria sp. A Anthozoa (LPIL)		0	0	0	0	0
Nemertea			Antilozoa (EFIE)		0	0	0	0	0
			Nemertea (LPIL)		0	0	0	0	0
			Nemertea sp. A (LPIL)		0	0	0	0	0
			Nemertea sp. B (LPIL) Nemertea sp. C (LPIL)		0	0	0	0	0
			Nemertea sp. D (LPIL)		0	0	0	0	0
Annelida			, ,						
	Polycha	aeta			_				
			Dorvillea (Schistomeringos) rudolphi Dorvilleidae (LPIL)		0	0	0	0	0
			Marphysa sanguinea		0	0	0	0	0
			Glycera americana	PS, EQ	0	0	0	0	0
			Glycera dibranchiata		0	0	0	0	0
	-		Glycera sp.		0	0	0	0	0
	<del>                                     </del>		Ophioglycera sp. Glycinde solitaria	PS, OP	0	0	0	0	0
			Gyptis crypta	-, =:	0	0	0	0	0
			Hesionidae (LPIL)		0	0	0	0	0
	<del>                                     </del>		Podarke obscura		0	0	0	0	0
			Laeonereis culveri Neanthes succinea	PI, OP	0	0	0	0	0
			Nereididae (LPIL)	,	0	0	0	0	0
			Platynereis dumerilii	_	0	0	0	0	0
			Drilonereis longa		0	0	0	0	0
			Diopatra cuprea Eteone sp.	PS, EQ	0	0	0	0	0
			Eumida sanguinea		0	0	0	0	0
			Phyllodoce mucosa		0	0	0	0	0
			Phyllodocidae (LPIL)		0	0	0	0	0
			Lepidonotus sp. Grubeosyllis clavata		0	0	0	0	0
			Syllidae (LPIL)		0	0	0	0	0
			Ampharetidae (LPIL)		0	0	0	0	0
			Spiochaetopterus costarum	PS	0	0	0	0	0
			Aphelochaeta sp. Cirratulidae (LPIL)		0	0	0	0	0
			Tharyx sp.		0	0	2	0	0
			Pectinaria gouldii		0	0	0	0	0
			Pectinaria sp.		0	0	0	0	0
			Demonax microphthalmus Sabellaria vulgaris		0	0	0	0	0
			Sabellidae (LPIL)		0	0	0	0	0
			Sabellinae (LPIL)		0	0	0	0	0
			Hydroides dianthus		0	0	0	0	0
			Hydroides diathus Hydroides sp.		0	0	0	0	0
			Serpulidae (LPIL)		0	0	0	0	0
			Apoprionospio pygmaea		0	0	0	0	0
			Dipolydora cauleri		0	0	0	0	0
	<del>                                     </del>		Dipolydora socialis  Marenzelleria viridis	PS	0	0	0	0	0
	<u> </u>		Minuspio sp.	1 3	0	0	0	0	0
			Paraprionospio pinnata	PI, OP	0	0	1	0	0
	<u> </u>		Polydora cornuta	PI, OP	0	0	0	0	0
	<del> </del>		Pseudopolydora sp. Scolelepis texana		0	0	0	0	0
			Spio sp.		0	0	0	0	0
			Spionidae (LPIL)		0	0	0	0	0
	<u> </u>		Streblospio benedicti	PI, OP	0	0	0	0	0
	1		Loimia medusa Loimia sp.	PS	0	0	0	0	0
			Pista cristata		0	0	0	0	0
			Terebellidae (LPIL)		0	0	0	0	0
			Capitella capitata complex Blake	PI, OP	0	0	0	0	0
	<del>                                     </del>		Capitella jonesi Capitella sp.	PI, OP PI, OP	0	0	0	0	0
	<u> </u>		Capitellidae (LPIL)	1 1, 01	0	0	0	0	0
_			Heteromastus filiformis	PI, OP	0	0	0	0	0
			Mediomastus ambiseta	PS, PI, OP	0	0	0	0	0
	<del> </del>		Mediomastus californiensis  Mediomastus sp.		0	0	0	0	0
			Leitoscoloplos fragilis	PI, OP	0	0	0	0	0
			Leitoscoloplos sp.		0	0	0	0	0
			Orbiniidae (LPIL)		0	0	0	0	0
	<del>                                     </del>		Scoloplos rubra Sigambra tentaculata		0	0	0	0	0
	<u> </u>		Clymenella torquata	PS, EQ	0	0	0	0	0
	Clitellat	a	·						
			Paranais frici	F:	0	0	0	0	0
	-		Tubificoid Naididae imm. w/o hair setae (LP Tubificoides sp.	PI	0	0	0	0	0
I	I	I	чр.	<u> </u>			·		·



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Phylum	Class	Order	Taxon	Pollution	LW03-SD539 LW03-SD539-00-10C	LW03-SD540 LW03-SD540-00-10C	LW03-SD541 LW03-SD541-00-10C	LW03-SD543 LW03-SD543-00-10C	LW03-SD544 LW03-SD544-00-10C
i nyiam	Olubb	Oraci	TUXOTI	Classification	09/01/2010	09/01/2010	09/07/2010	09/01/2010	09/01/2010
Arthropoda									
	Malaco	straca Amphipe	nda .						
		Ampinpo	Aoridae (LPIL)		0	0	0	0	0
			Monocorophium acherusicum		0	0	0	0	0
			Monocorophium insidiosum  Monocorophium sp.		0	0	0	0	0
			Listriella clymenellae	PS	0	0	0	0	0
		Cumace			0				2
			Cyclaspis varians Leucon americanus		0	0	0	0	0
			Cumacea (LPIL)		0	0	0	0	0
		Decapoo	Alpheus sp.	PS, EQ?	0	0	0	0	0
			Palaemonetes sp.	10, LQ:	0	0	0	0	0
			Panopeidae (LPIL)		0	0	0	0	0
			Panopeus herbstii Rhithropanopeus harrisii		0	0	0	0	0
			Pinnixa sp.		0	0	0	0	0
			Callinectes sp.		0	0	0	0	0
			Portunidae (LPIL) Decapoda (LPIL)		0	0	0	0	0
			Decapoda zoea (larva)		0	0	0	0	0
		Isopoda	Edotia triloba		0	0	0	0	0
		Leptostr	ļ.		0	0	0	0	0
			Leptostraca (LPIL)		0	0	0	0	0
		Mysida	Amaricamysis bigalow:		^	^	0	0	^
1			Americamysis bigelowi Americamysis sp.		0	0	0	0	0
			Mysidae (LPIL)		0	0	0	0	0
			Neomysis americana		0	0	0	0	0
		Stomato	Mysidacea (LPIL)  poda		U	U	U	U	U
			Squilla empusa	PS, EQ	0	0	0	0	0
	Maxillo	poda Sessilia							
1		oessilla	Balanus improvisus		0	0	0	0	0
			Balanomorpha (LPIL)		0	0	0	0	0
	Entogn	atha	Collembola (LPIL)		0	0	0	0	0
	Unspec	ified	OUIIGIIIDUIA (LFIL)	<u> </u>	U	U	U	U	U
			Crustacea (LPIL)		0	0	0	0	0
Mollusca	Gastrop	noda .							
	Gastrop	Joua	Acteocina canaliculata	PS	0	0	0	0	0
			Acteocina sp.		0	0	0	0	0
			Odostomia engonia Turbonilla interrupta		0	0	0	0	0
			Astyris lunata		0	0	0	0	0
			Nassarius vibex		0	0	0	0	0
			Pyrgocythara plicosa Crepidula fornicata		0	0	0	0	0
			Crepidula plana		0	0	0	0	0
			Cerithiopsis greenii		0	0	0	0	0
			Epitonium rupicola Gastropoda (LPIL)		0	0	0	0	0
	Bivalvia	1	Odon opoda (E. 12)		Ü	Ů	, and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second	Ů	- u
			Anadara transversa	PS, EQ	0	0	0	0	0
			Amygdalum papyrium Anomia simplex		0	0	0	0	0
			Pododesmus rudis		0	0	0	0	0
			Crassostrea virginica		0	0	0	0	0
			Lyonsia hyalina Mactridae (LPIL)		0	0	0	0	0
			Mulinia lateralis	OP	0	0	0	0	0
			Petricolaria pholadiformis		0	0	0	0	0
			Tagelus plebeius Tagelus sp.	EQ PS, EQ?	0	0	0	0	0
			Macoma tenta	-, =	0	0	0	0	0
			Tellinidae (LPIL)	00	0	0	0	0	0
			Gemma gemma Mercenaria mercenaria	OP PS, EQ	0	0	0	0	0
			Pitar sp.	, ,	0	0	0	0	0
			Veneridae (LPIL) Bivalvia (LPIL)		0	0	0	0	0
Phoronida									
	<u> </u>		Phoronida (LPIL)		0	0	2	0	0
Echinoderm	nata		Ophiuroidea (LPIL)		0	0	0	0	0
Chordata									
			Branchiostoma sp.		0	0	0	0	0
1			Total Raw Count		0	0	9	0	0
			Number of Taxa		0	0	7	0	0
			DS - Pollution Consists a Mariata	07					
			PS = Pollution Sensitive, Weisberg et al, 19 PI = Polution Indicator, Weisberg et al. 1997						
			OP = Opportunistic, Ranasinghe et al. 1994						
			EQ = Equlibrium, Ranasinghe et al. 1994	on level					
1			? = Uncertanty due to taxonomic identification	OII IEVEI					
		Metri							
			Total Raw Count  Total Density (Number per Square Meter)	<u> </u>	0	0	9 129	0	0
			Number of Taxa	, 	0	0	129 7	0	0
			Shannon Diversity Index (Base e)		0	0	1.889	0	0
			Shannon Diversity Index (Base 2)		0	0	2.725	0	0
			Name of Dominant Taxon		N/A	N/A	Phoronida (LPIL) / Tharyx sp.	N/A	N/A
			Percent Contribution of Dominant Taxon		0	0	22.22	0	0
			Density (No./Square Meter) Dominant Ta	xon	0	0	29	0	0
			Percent Amphipods Percent Bivalves		0.00	0.00	0.00 0.00	0.00	0.00
			Percent Spionid Polychaetes		0.00	0.00	11.10	0.00	0.00
			Percent Mediomastus Polychaetes		0.00	0.00	0.00	0.00	0.00
			Percent Deposit Feeders	<u>l</u>	0	0	27.78	0	0



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				Pollution	LW03-SD545	LW03-SD546	LW03-SD547	LW03-SD548	LW03-SD549
Phylum	Class	Order	Taxon	Classification	LW03-SD545-00-10C	LW03-SD546-00-10C	LW03-SD547-00-10C	LW03-SD548-00-10C	LW03-SD549-00-10C
					09/01/2010	09/01/2010	09/07/2010	09/09/2010	09/09/2010
Porifera									
			Porifera (LPIL)		0	0	0	1	0
Cnidaria	Herelean								
	Hydroz	oa I	Hydrozoa (LPIL)		0	0	0	0	0
	Anthoz	na	Trydrozoa (Er 1E)		•	Ů	Ů	Ů	0
	7		Actiniaria (LPIL)		0	0	0	0	0
			Actiniaria sp. A		0	0	0	0	0
			Anthozoa (LPIL)		0	0	0	0	0
Nemertea									
			Nemertea (LPIL)		0	0	0	0	0
			Nemertea sp. A (LPIL)		0	0	0	0	0
			Nemertea sp. B (LPIL)		0	0	0	0	0
			Nemertea sp. C (LPIL)  Nemertea sp. D (LPIL)		0	0	0	0	0
Annelida			Nemeriea sp. D (LFIL)		U	0	0	0	U
Aimenda	Polycha	neta							
			Dorvillea (Schistomeringos) rudolphi		0	0	0	0	0
			Dorvilleidae (LPIL)		0	0	0	0	0
			Marphysa sanguinea		0	0	0	0	0
			Glycera americana	PS, EQ	0	0	0	0	0
			Glycera dibranchiata		0	0	0	0	0
			Glycera sp.		0	0	0	0	0
			Ophioglycera sp.		0	0	0	0	0
			Glycinde solitaria	PS, OP	0	0	2	0	0
			Gyptis crypta		0	0	0	0	0
			Hesionidae (LPIL) Podarke obscura		0	0	0	0	0
			Laeonereis culveri		0	0	0	0	0
			Neanthes succinea	PI, OP	0	0	0	0	0
			Nereididae (LPIL)	.,	0	0	0	0	0
			Platynereis dumerilii		0	0	0	0	0
			Drilonereis longa		0	0	0	0	0
			Diopatra cuprea	PS, EQ	0	0	0	0	0
			Eteone sp.		0	0	0	0	0
			Eumida sanguinea		0	0	0	0	0
			Phyllodoce mucosa		0	0	0	0	0
			Phyllodocidae (LPIL)		0	0	0	0	0
			Lepidonotus sp. Grubeosyllis clavata		0	0	0	0	0
			Syllidae (LPIL)		0	0	0	0	0
			Ampharetidae (LPIL)		0	0	0	0	0
			Spiochaetopterus costarum	PS	0	0	0	0	0
			Aphelochaeta sp.		0	0	0	0	0
			Cirratulidae (LPIL)		0	0	1	0	0
			Tharyx sp.		0	0	0	0	0
			Pectinaria gouldii		0	0	0	0	0
			Pectinaria sp.		0	0	0	0	0
			Demonax microphthalmus		0	0	0	0	0
			Sabellaria vulgaris Sabellidae (LPIL)		0	0	0	0	0
			Sabellinae (LPIL) Sabellinae (LPIL)		0	0	0	0	0
			Hydroides dianthus		0	0	0	0	0
			Hydroides diathus		0	0	0	0	0
			Hydroides sp.		0	0	0	0	0
			Serpulidae (LPIL)		0	0	0	0	0
			Apoprionospio pygmaea		0	0	0	0	0
			Dipolydora cauleri		0	0	0	0	0
			Dipolydora socialis  Maranzallaria viridia	De	0	0	0	0	0
			Marenzelleria viridis Minuspio sp.	PS	0	0	0	0	0
			Paraprionospio pinnata	PI, OP	0	0	0	0	0
			Polydora cornuta	PI, OP	0	0	1	0	0
			Pseudopolydora sp.		0	0	0	0	0
			Scolelepis texana		0	0	0	0	0
			Spio sp.		0	0	0	0	0
			Spionidae (LPIL)	B	0	0	0	0	0
			Streblospio benedicti	PI, OP	0	0	1	0	0
			Loimia medusa Loimia sp.	PS	0	0	0	0	0
			Pista cristata		0	0	0	0	0
			Terebellidae (LPIL)		0	0	0	0	0
			Capitella capitata complex Blake	PI, OP	0	0	0	0	0
			Capitella jonesi	PI, OP	0	0	0	0	0
			Capitella sp.	PI, OP	0	0	0	0	0
			Capitellidae (LPIL)		0	0	0	0	0
			Heteromastus filiformis	PI, OP	0	0	0	0	0
			Mediomastus ambiseta	PS, PI, OP	0	0	0	0	0
			Mediomastus californiensis		0	0	0	0	0
			Mediomastus sp.	PI, OP	0	0	0	0	0
			Leitoscoloplos fragilis Leitoscoloplos sp.	P1, UP	0	0	0	0	0
			Orbiniidae (LPIL)		0	0	0	0	0
			Scoloplos rubra		0	0	0	0	0
					0	0	0	0	0
			Sigambra tentaculata						
			Sigambra tentaculata Clymenella torquata	PS, EQ	0	0	0	0	0
	Clitellat	a	Clymenella torquata	PS, EQ	0				
	Clitellat	a	Clymenella torquata  Paranais frici		0	0	0	0	0
	Clitellat	a	Clymenella torquata		0				



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Phylum	Class	Order	Taxon	Pollution	LW03-SD545 LW03-SD545-00-10C	LW03-SD546 LW03-SD546-00-10C	LW03-SD547 LW03-SD547-00-10C	LW03-SD548 LW03-SD548-00-10C	LW03-SD549 LW03-SD549-00-10C
·				Classification	09/01/2010	09/01/2010	09/07/2010	09/09/2010	09/09/2010
Arthropoda	Malacos	straca							
	Walaco	Amphipe	oda						
			Aoridae (LPIL)  Monocorophium acherusicum		0	0	0	0	0
			Monocorophium insidiosum		0	0	0	0	0
			Monocorophium sp. Listriella clymenellae	PS	0	0	0	0	0
		Cumace	a						
			Cyclaspis varians Leucon americanus		0	0	0	0	0
			Cumacea (LPIL)		0	0	0	0	0
		Decapoo	Alpheus sp.	PS, EQ?	0	0	0	0	0
			Palaemonetes sp.	,	0	0	0	0	0
			Panopeidae (LPIL) Panopeus herbstii		0	0	0	0	0
			Rhithropanopeus harrisii		0	0	0	0	0
			Pinnixa sp. Callinectes sp.		0	0	0	0	0
			Portunidae (LPIL)		0	0	0	0	0
			Decapoda (LPIL) Decapoda zoea (larva)		0	0	0	0	0 2
		Isopoda				_			
		Leptostr	Edotia triloba		0	0	0	0	0
			Leptostraca (LPIL)		0	0	0	0	0
		Mysida	Americamysis bigelowi		0	0	0	0	0
			Americamysis sp.		0	0	0	0	0
			Mysidae (LPIL) Neomysis americana		0	0	0	0	0
		C.	Mysidacea (LPIL)		0	0	0	0	0
		Stomato	Squilla empusa	PS, EQ	0	0	0	0	0
	Maxillo								
		Sessilia	Balanus improvisus		0	0	0	0	0
	F	ath c	Balanomorpha (LPIL)		0	0	0	0	0
	Entogna	atria	Collembola (LPIL)		0	0	0	0	0
	Unspec	ified	0 ( # P# )						
Mollusca		<u> </u>	Crustacea (LPIL)		0	0	0	0	0
	Gastrop	oda	A stancing conclinulate	DC	0	0	0	0	0
			Acteocina canaliculata Acteocina sp.	PS	0	0	0	0	0
			Odostomia engonia		0	0	0	0	0
			Turbonilla interrupta Astyris lunata		0	0	0	0	0
			Nassarius vibex		0	0	0	0	0
			Pyrgocythara plicosa Crepidula fornicata		0	0	0	0	0
			Crepidula plana		0	0	0	0	0
			Cerithiopsis greenii Epitonium rupicola		0	0	0	0	0
	Dischar		Gastropoda (LPIL)		0	0	0	0	0
	Bivalvia	1	Anadara transversa	PS, EQ	0	0	0	0	0
			Amygdalum papyrium		0	0	0	0	0
			Anomia simplex Pododesmus rudis		0	0	0	0	0
			Crassostrea virginica		0	0	0	0	0
			Lyonsia hyalina Mactridae (LPIL)		0	0	0	0	0
			Mulinia lateralis Petricolaria pholadiformis	OP	0	0	0	0	0
			Tagelus plebeius	EQ	0	0	0	0	0
			Tagelus sp. Macoma tenta	PS, EQ?	0	0	0	0	0
			Tellinidae (LPIL)		0	0	0	0	0
			Gemma gemma Mercenaria mercenaria	OP PS, EQ	0	0	2 0	0	0
			Pitar sp.	1 U, EW	0	0	0	0	0
			Veneridae (LPIL) Bivalvia (LPIL)		0	0	13	0	0
Phoronida									
Echinoderm	nata		Phoronida (LPIL)		0	0	0	0	0
			Ophiuroidea (LPIL)		0	0	0	0	0
Chordata			Branchiostoma sp.		0	0	0	0	0
			Total Raw Count Number of Taxa		0	0	20 6	1	2
				0.7					
			PS = Pollution Sensitive, Weisberg et al, 19 PI = Polution Indicator, Weisberg et al. 1997						
			OP = Opportunistic, Ranasinghe et al. 1994						
			EQ = Equlibrium, Ranasinghe et al. 1994 ? = Uncertanty due to taxonomic identification	on level					
		N/ - 1 - 1							
		Metri	Total Raw Count		0	0	20	1	2
			Total Density (Number per Square Meter	)	0	0	287	14	29
			Number of Taxa Shannon Diversity Index (Base e)		0	0	6 1.19	0	0
			Shannon Diversity Index (Base 2)		0	0	1.717	0	0
			Name of Dominant Taxon		N/A	N/A	Veneridae (LPIL)	Porifera (LPIL)	Decapoda zoea (LPIL)
			Percent Contribution of Dominant Taxon		0	0	65.00	100.00	100.00
			Density (No./Square Meter) Dominant Tal Percent Amphipods	xon	0.00	0.00	187 0.00	0.00	29 0.00
			Percent Bivalves		0.00	0.00	0.00	0.00	0.00
			Percent Spionid Polychaetes Percent Mediomastus Polychaetes		0.00	0.00	10.00	0.00	0.00
			Percent Deposit Feeders		0	0	10	0	0



		l	<u> </u>	1	LW03-SD550-01	LW03-SD551	LW03-SD552	LW03-SD553	LW03-SD555
Phylum	Class	Order	Taxon	Pollution Classification	LW03-SD550-01-10C	LW03-SD551-00-10C	LW03-SD552-00-10C	LW03-SD553-00-10C	LW03-SD555-00-10C
				Classification	09/08/2010	09/08/2010	09/07/2010	09/07/2010	09/09/2010
Porifera			Porifera (LPIL)		0	0	0	0	0
Cnidaria			Tolliera (El IE)		Ü	Ü	Ü	Ü	Ü
	Hydroz	oa							_
	Anthoz	03	Hydrozoa (LPIL)		0	0	0	0	0
	Antiloz	<u> </u>	Actiniaria (LPIL)		0	0	0	0	0
			Actiniaria sp. A		0	0	0	0	0
Nemertea			Anthozoa (LPIL)		0	0	0	0	0
Nemertea			Nemertea (LPIL)		0	0	0	0	0
			Nemertea sp. A (LPIL)		0	0	0	0	0
			Nemertea sp. B (LPIL)		0	0	0	0	0
			Nemertea sp. C (LPIL)  Nemertea sp. D (LPIL)		0	0	0	0	0
Annelida			, ,						
	Polycha	aeta							
			Dorvillea (Schistomeringos) rudolphi Dorvilleidae (LPIL)		0	0	0	0	0
			Marphysa sanguinea		0	0	0	1	0
			Glycera americana	PS, EQ	0	0	0	0	0
			Glycera dibranchiata Glycera sp.		0	0	0	0	0
			Ophioglycera sp.		0	0	0	0	0
			Glycinde solitaria	PS, OP	0	0	0	1	0
			Gyptis crypta		0	0	0	0	0
			Hesionidae (LPIL) Podarke obscura		0	0	0	0	0
			Laeonereis culveri		0	0	0	0	0
			Neanthes succinea	PI, OP	0	0	0	0	0
			Nereididae (LPIL) Platynereis dumerilii		0	0	0	0	0
			Drilonereis longa		0	0	0	0	0
			Diopatra cuprea	PS, EQ	0	0	0	0	0
			Eteone sp.		0	0	0	0	0
			Eumida sanguinea Phyllodoce mucosa		0	0	0	0	0
			Phyllodocidae (LPIL)		0	0	0	0	0
			Lepidonotus sp.		0	0	0	0	0
			Grubeosyllis clavata Syllidae (LPIL)		0	0	0	0	0
			Ampharetidae (LPIL)		0	0	0	0	0
			Spiochaetopterus costarum	PS	0	0	0	0	0
			Aphelochaeta sp.		0	0	0	0	0
			Cirratulidae (LPIL) Tharyx sp.		0	0	0	0	0
			Pectinaria gouldii		0	0	0	0	0
			Pectinaria sp.		0	0	0	0	0
			Demonax microphthalmus Sabellaria vulgaris		0	0	0	0	0
			Sabellidae (LPIL)		0	0	0	0	0
			Sabellinae (LPIL)		0	0	0	0	0
			Hydroides dianthus Hydroides diathus		0	0	0	0	0
			Hydroides sp.		0	0	0	1	0
			Serpulidae (LPIL)		0	0	0	0	0
			Apoprionospio pygmaea		0	0	0	0	0
			Dipolydora cauleri Dipolydora socialis		0	0	0	0	0
		<u></u>	Marenzelleria viridis	PS	0	0	0	0	0
			Minuspio sp.		0	0	0	0	0
			Paraprionospio pinnata Polydora cornuta	PI, OP PI, OP	0	1	0	0	0
			Pseudopolydora sp.	1 1, OF	0	0	0	0	0
			Scolelepis texana		0	0	0	0	0
			Spio sp.		0	0	0	0	0
			Spionidae (LPIL) Streblospio benedicti	PI, OP	0	1	0	0	12
			Loimia medusa	PS	0	0	0	0	0
			Loimia sp.		0	0	0	1	0
			Pista cristata Terebellidae (LPIL)		0	0	0	0 1	0
			Capitella capitata complex Blake	PI, OP	0	0	0	1	0
_			Capitella jonesi	PI, OP	0	0	0	0	0
			Capitella sp.	PI, OP	0	0	0	0	0
			Capitellidae (LPIL) Heteromastus filiformis	PI, OP	0	0	0	1	0
			Mediomastus ambiseta	PS, PI, OP	0	0	0	0	0
			Mediomastus californiensis		0	0	0	0	0
			Mediomastus sp. Leitoscoloplos fragilis	PI, OP	0	0	0	0	0
			Leitoscolopios fragilis Leitoscolopios sp.	1 1, OF	0	0	0	0	0
			Orbiniidae (LPIL)		0	0	0	0	0
			Scoloplos rubra		0	0	0	0	0
			Sigambra tentaculata Clymenella torquata	PS, EQ	0	0	0	0	0
	Clitellat	a		, -		-	-	-	-
			Paranais frici		0	0	0	0	0
			Tubificoid Naididae imm. w/o hair setae (LF Tubificoides sp.	PI	0	0	0	0	0
	i	i		I		<u> </u>	· · · · · · · · · · · · · · · · · · ·	<u>.                                    </u>	<u> </u>



					LW03-SD550-01	LW03-SD551	LW03-SD552	LW03-SD553	LW03-SD555
Phylum	Class	Order	Taxon	Pollution Classification	LW03-SD550-01-10C 09/08/2010	LW03-SD551-00-10C 09/08/2010	LW03-SD552-00-10C 09/07/2010	LW03-SD553-00-10C 09/07/2010	LW03-SD555-00-10C 09/09/2010
Arthropoda					00/00/2010	00/00/2010	00/01/2010	00/01/2010	00/00/2010
	Malacos	straca Amphipo							
			Aoridae (LPIL)  Monocorophium acherusicum		0	0	0	0	0
			Monocorophium insidiosum		0	0	0	0	0
			Monocorophium sp. Listriella clymenellae	PS	0	0	0	0	0
		Cumace	a Cyclaspis varians		0	0	0	0	0
			Leucon americanus		0	0	0	0	0
		Decapoo	Cumacea (LPIL)		0	0	0	0	0
			Alpheus sp. Palaemonetes sp.	PS, EQ?	0	0	0	0	0
			Panopeidae (LPIL)		0	0	0	0	0
			Panopeus herbstii Rhithropanopeus harrisii		0	0	0	0	0
			Pinnixa sp. Callinectes sp.		0	0	0	0	0
			Portunidae (LPIL)		0	0	0	0	0
			Decapoda (LPIL) Decapoda zoea (larva)		0	0	0	0	0
		Isopoda	Edotia triloba		0	0	0	0	0
		Leptostr	aca						
		Mysida	Leptostraca (LPIL)		0	0	0	0	0
			Americamysis bigelowi Americamysis sp.		0	0	0	0	0
			Mysidae (LPIL)		0	0	0	0	0
			Neomysis americana Mysidacea (LPIL)		0	0	0	0	0
		Stomato	poda Squilla empusa	PS, EQ	0	0	0	0	0
	Maxillo			. 5, = 4	Ť	Ť	·	Ť	·
		Sessilia	Balanus improvisus		0	0	0	0	0
	Entogna	atha	Balanomorpha (LPIL)		0	0	0	0	0
			Collembola (LPIL)		0	0	0	0	0
	Unspec	ified	Crustacea (LPIL)		0	0	0	1	0
Mollusca	Gastrop	ooda							
			Acteocina canaliculata	PS	0	0	0	1	0
			Acteocina sp. Odostomia engonia		0	0	0	0	0
			Turbonilla interrupta Astyris lunata		0	0	0	0	0
			Nassarius vibex		0	0	0	0	0
			Pyrgocythara plicosa Crepidula fornicata		0	0	0	1 0	0
			Crepidula plana Cerithiopsis greenii		0	0	0	0	0
			Epitonium rupicola		0	0	0	0	0
	Bivalvia	1	Gastropoda (LPIL)		0	0	0	0	0
			Anadara transversa Amygdalum papyrium	PS, EQ	0	0	0	0	0
			Anomia simplex		0	0	0	1	0
			Pododesmus rudis Crassostrea virginica		0	0	0	0	0
			Lyonsia hyalina Mactridae (LPIL)		0	0	0	0	0
			Mulinia lateralis	OP	0	0	0	0	0
			Petricolaria pholadiformis Tagelus plebeius	EQ	0	0	0	0	0
			Tagelus sp. Macoma tenta	PS, EQ?	0	0	0	1 0	0
			Tellinidae (LPIL)		0	0	0	0	0
			Gemma gemma Mercenaria mercenaria	OP PS, EQ	0	0	0	0	0
			Pitar sp. Veneridae (LPIL)		0	0	0	0 4	0
Discon			Bivalvia (LPIL)		0	0	0	0	0
Phoronida			Phoronida (LPIL)		0	0	0	1	0
Echinoderm	nata		Ophiuroidea (LPIL)		0	0	0	0	0
Chordata			Branchiostoma sp.		0	0	0	0	0
			Total Raw Count Number of Taxa		0	3	0	20 17	13 2
			PS = Pollution Sensitive, Weisberg et al, 19	97					
			PI = Polution Indicator, Weisberg et al. 1997	7					
			OP = Opportunistic, Ranasinghe et al. 1994 EQ = Equlibrium, Ranasinghe et al. 1994						
			? = Uncertanty due to taxonomic identification	on level					
		Metri	•	I					
			Total Raw Count Total Density (Number per Square Meter)	<u> </u> 	0	3 43	0	20 287	13 187
			Number of Taxa Shannon Diversity Index (Base e)		0	3 1.099	0	17 2.776	2 0.271
			Shannon Diversity Index (Base 2)		0	1.585	0	4.005	0.391
						Paraprionospio pinnata /			
			Name of Dominant Taxon		N/A	Polydora cornuta / Streblospio benedicti	N/A	Veneridae (LPIL)	Streblospio benedicti
			Percent Contribution of Dominant Taxon Density (No./Square Meter) Dominant Tax		0	33.33 14	0	18.18 52	95.31 178
			Percent Amphipods		0.00	0.00	0.00	0.00	0.00
			Percent Bivalves Percent Spionid Polychaetes		0.00	0.00 100.00	0.00	36.30 4.50	0.00 100.00
			Percent Mediomastus Polychaetes Percent Deposit Feeders		0.00	0.00	0.00	0.00	0.00
			i ercent peposit reeders	İ	0	50	0	18.18	50



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Dhylum	Class	Ordor	Tayon	Pollution	LW03-SD556	LW03-SD557	LW03-SD558-01	LW03-SD559	LW03-SD562
Phylum	Class	Order	Taxon	Classification	LW03-SD556-00-10C 09/08/2010	LW03-SD557-00-10C 09/08/2010	LW03-SD558-01-10C 09/08/2010	LW03-SD559-00-10C 09/07/2010	LW03-SD562-00-10C 09/08/2010
Porifera					09/06/2010	09/06/2010	09/06/2010	09/07/2010	09/06/2010
Pornera			Porifera (LPIL)		0	0	0	1	0
Cnidaria			· omora (Er iE)		, and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second		, , ,	·	, , ,
	Hydroz	oa							
			Hydrozoa (LPIL)		0	0	0	0	0
	Anthoz	oa			_	_	_	_	_
			Actiniaria (LPIL) Actiniaria sp. A		0	0	0	0	0
			Anthozoa (LPIL)		0	0	0	0	0
Nemertea			(= -2)		<u> </u>			<u> </u>	
			Nemertea (LPIL)		0	0	0	0	0
			Nemertea sp. A (LPIL)		0	0	0	0	0
			Nemertea sp. B (LPIL)		0	0	0	0	0
			Nemertea sp. C (LPIL) Nemertea sp. D (LPIL)		0	0	0	0	0
Annelida			remerca sp. b (Er IL)		Ů	Ŭ	Ů	Ů	Ů
	Polycha	aeta							
			Dorvillea (Schistomeringos) rudolphi		0	0	0	0	0
			Dorvilleidae (LPIL)		0	0	0	0	0
			Marphysa sanguinea	D0 F0	0	0	0	0	0
			Glycera americana Glycera dibranchiata	PS, EQ	0	0	0	0	0
			Glycera sp.		0	0	0	0	0
			Ophioglycera sp.		0	0	0	0	0
			Glycinde solitaria	PS, OP	0	0	0	0	0
			Gyptis crypta		0	0	0	0	0
			Hesionidae (LPIL)		0	0	0	0	0
			Podarke obscura Laeonereis culveri		0	0	0	0	0
			Neanthes succinea	PI, OP	0	0	1	0	0
			Nereididae (LPIL)		0	0	0	0	0
			Platynereis dumerilii		0	0	0	0	0
			Drilonereis longa		0	0	0	0	0
			Diopatra cuprea	PS, EQ	0	0	0	0	0
			Eteone sp. Eumida sanguinea		0	0	0	0	0
			Phyllodoce mucosa		0	0	0	0	0
			Phyllodocidae (LPIL)		0	0	0	0	0
			Lepidonotus sp.		0	0	0	0	0
			Grubeosyllis clavata		0	0	0	0	0
			Syllidae (LPIL)		0	0	0	0	0
			Ampharetidae (LPIL) Spiochaetopterus costarum	PS	0	0	0	0	0
			Aphelochaeta sp.	F3	0	0	0	0	0
			Cirratulidae (LPIL)		0	0	0	0	0
			Tharyx sp.		0	0	0	0	0
			Pectinaria gouldii		0	0	0	0	0
			Pectinaria sp.		0	0	0	0	0
			Demonax microphthalmus Sabellaria vulgaris		0	0	0	0	0
			Sabellidae (LPIL)		0	0	0	0	0
			Sabellinae (LPIL)		0	0	0	0	0
			Hydroides dianthus		0	0	0	0	0
			Hydroides diathus		0	0	0	0	0
			Hydroides sp.		0	0	0	0	0
			Serpulidae (LPIL) Apoprionospio pygmaea		0	0	0	0	0
			Dipolydora cauleri		0	0	0	0	0
			Dipolydora socialis		0	0	0	0	0
			Marenzelleria viridis	PS	0	0	0	0	0
			Minuspio sp.	DI 05	0	0	0	0	0
	1		Paraprionospio pinnata Polydora cornuta	PI, OP PI, OP	0	0	0	0	0
	1		Pseudopolydora sp.	ri, UF	0	0	0	0	0
			Scolelepis texana		0	0	0	0	0
			Spio sp.	-	0	0	0	0	0
			Spionidae (LPIL)		0	0	0	0	0
			Streblospio benedicti	PI, OP PS	3 0	0	1	0	0
			Loimia medusa Loimia sp.	۲۵	0	0	0	0	0
			Pista cristata		0	0	0	0	0
			Terebellidae (LPIL)		0	0	0	0	0
			Capitella capitata complex Blake	PI, OP	0	0	0	0	0
			Capitella jonesi	PI, OP	0	0	0	0	0
			Capitella sp.	PI, OP	0	0	0	0	0
			Capitellidae (LPIL) Heteromastus filiformis	PI, OP	0	0	0	0	0
			Mediomastus ambiseta	PS, PI, OP	0	0	0	0	0
			Mediomastus californiensis		0	0	0	0	0
			Mediomastus sp.	-	0	0	0	0	0
			Leitoscoloplos fragilis	PI, OP	0	0	0	0	0
			Leitoscoloplos sp.		0	0	0	0	0
			Orbiniidae (LPIL) Scoloplos rubra		0	0	0	0	0
			Sigambra tentaculata		0	0	0	0	0
			Clymenella torquata	PS, EQ	0	0	0	0	0
-	Clitellat	a		-					
			Paranais frici	F:	0	0	0	0	0
	-		Tubificoid Naididae imm. w/o hair setae (LP	PI	0	0	0	0	0
	<u> </u>	<u>I</u>	Tubificoides sp.		I U	U	ı	l 0	ı



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Phylum	Class	Order	Taxon	Pollution	LW03-SD556 LW03-SD556-00-10C	LW03-SD557 LW03-SD557-00-10C	LW03-SD558-01 LW03-SD558-01-10C	LW03-SD559 LW03-SD559-00-10C	LW03-SD562 LW03-SD562-00-10C
1 Hylam	Olubb	Oraci	TUXOTI	Classification	09/08/2010	09/08/2010	09/08/2010	09/07/2010	09/08/2010
Arthropoda									
	Malaco	straca Amphipe	nda						
		Ampinipo	Aoridae (LPIL)		0	0	0	0	0
			Monocorophium acherusicum		0	0	0	0	0
			Monocorophium insidiosum  Monocorophium sp.		0	0	0	0	0
			Listriella clymenellae	PS	0	0	0	0	0
		Cumace							<del></del>
			Cyclaspis varians Leucon americanus		0	0	0	0	0
			Cumacea (LPIL)		0	0	0	0	0
		Decapoo	Alpheus sp.	PS, EQ?	0	0	0	0	0
			Palaemonetes sp.	F3, EQ?	0	0	0	0	0
			Panopeidae (LPIL)		0	0	0	0	0
			Panopeus herbstii Rhithropanopeus harrisii		0	0	0	0	0
			Pinnixa sp.		0	0	0	1	0
			Callinectes sp.		0	0	0	0	0
			Portunidae (LPIL) Decapoda (LPIL)		0	0 1	0	0	0
			Decapoda zoea (larva)		2	1	0	0	0
		Isopoda	Edotia triloba		0	0		0	
		Leptostr			0	0	0	0	0
			Leptostraca (LPIL)		0	0	0	0	1
		Mysida	Amoricamysis bizolovii		^	0	0	0	^
1			Americamysis bigelowi Americamysis sp.		0	0	0 1	0	0
			Mysidae (LPIL)		1	0	0	0	0
			Neomysis americana Mysidacea (LPIL)		0	1 0	0	0	0
		Stomato	Mysidacea (LPIL) poda		U	U	U	U	U
			Squilla empusa	PS, EQ	1	0	0	0	0
	Maxillo	poda Sessilia							
		ocaailid	Balanus improvisus		0	0	0	0	0
			Balanomorpha (LPIL)		0	0	0	0	0
	Entogn	atha	Collembola (LPIL)		0	0	0	0	0
	Unspec	ified				, in the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second		,	
			Crustacea (LPIL)		0	0	0	0	0
Mollusca	Gastron	ooda							
			Acteocina canaliculata	PS	0	0	0	0	0
			Acteocina sp.		0	0	0	0	0
			Odostomia engonia Turbonilla interrupta		0	0	0	0	0
			Astyris lunata		0	0	0	0	0
			Nassarius vibex		0	0	0	0	0
			Pyrgocythara plicosa Crepidula fornicata		0	0	0	0	0
			Crepidula plana		0	0	0	0	0
			Cerithiopsis greenii Epitonium rupicola		0	0	0	0	0
			Gastropoda (LPIL)		0	0	0	0	0
	Bivalvia	3							
			Anadara transversa Amygdalum papyrium	PS, EQ	0	0	0	0	0
			Anomia simplex		0	0	0	0	0
			Pododesmus rudis		0	0	0	0	0
			Crassostrea virginica Lyonsia hyalina		0	0	0	0	0
			Mactridae (LPIL)		0	0	0	0	0
			Mulinia lateralis	OP	0	0	0	0	0
			Petricolaria pholadiformis  Tagelus plebeius	EQ	0	0	0	0	0
			Tagelus sp.	PS, EQ?	0	0	0	0	0
			Macoma tenta Tellinidae (LPIL)		0	0	0	0	0
			Gemma gemma	OP	0	0	0	0	0
			Mercenaria mercenaria	PS, EQ	0	0	0	0	0
			Pitar sp. Veneridae (LPIL)		0	0	0	0	0
			Bivalvia (LPIL)		0	0	0	0	0
Phoronida			Phoronida (LPIL)		0	0	0	0	0
Echinoderm	nata		i nolullua (LFIL)		U	U	U	U	
			Ophiuroidea (LPIL)		0	0	0	0	0
Chordata			Branchiostoma sp.		0	0	0	0	0
			S. SHOHIOGIGHIA SP.		<u> </u>			J	
			Total Raw Count		7	3	3	4	1
			Number of Taxa		4	3	3	4	1
			PS = Pollution Sensitive, Weisberg et al, 19	97					
			PI = Polution Indicator, Weisberg et al. 1997						
			OP = Opportunistic, Ranasinghe et al. 1994 EQ = Equlibrium, Ranasinghe et al. 1994						
			? = Uncertanty due to taxonomic identificati	on level					
		Metri	re						
		ivietří	Total Raw Count		7	3	3	4	1
			Total Density (Number per Square Meter	)	101	43	43	57	14
			Number of Taxa Shannon Diversity Index (Base e)		4 1.277	3 1.099	3 1.099	4 1.386	1 0
			Shannon Diversity Index (Base e) Shannon Diversity Index (Base 2)		1.277	1.099 1.585	1.099 1.585	1.386	0
			, ,					Porifera (LPIL) /	
						Decapoda (LPIL) / Decapoda zoea (LPIL) /	Neanthes succinea / Streblospio benedicti /	Paraprionospio pinnata / Streblospio benedicti /	I
			Name of Dominant Taxon		Streblospio benedicti	Neomysis americana	Americamysis sp.	Pinnixa sp.	Leptostraca (LPIL)
			Percent Contribution of Dominant Taxon Density (No./Square Meter) Dominant Tax		42.86 43	33.33 14	33.33 14	25.00 14	100.00 14
			Percent Amphipods		0.00	0.00	0.00	0.00	0.00
			Percent Bivalves		0.00	0.00	0.00	0.00	0.00
			Percent Spionid Polychaetes Percent Mediomastus Polychaetes		42.90 0.00	0.00	33.30 0.00	50.00 0.00	0.00
			Percent Deposit Feeders		21.43	0	33.33	37.5	0



	1	l	<u> </u>	1	LW03-SD563	LW03-SD564	LW03-SD567	LW03-SD571	LW03-SD574
Phylum	Class	Order	Taxon	Pollution Classification	LW03-SD563-00-10C	LW03-SD564-00-10C	LW03-SD567-00-10C	LW03-SD571-00-10C	LW03-SD574-00-10C
				Classification	09/08/2010	09/08/2010	09/08/2010	09/08/2010	08/31/2010
Porifera			Porifera (LPIL)		0	0	0	0	0
Cnidaria			Tolliera (El IE)		Ü	Ü	Ü	Ü	Ü
	Hydroz	oa							_
	Anthoz	03	Hydrozoa (LPIL)		0	0	0	0	0
	Antiloz	<u> </u>	Actiniaria (LPIL)		0	0	0	0	0
			Actiniaria sp. A		0	0	0	0	0
Nemertea			Anthozoa (LPIL)		0	0	0	0	0
Nemertea			Nemertea (LPIL)		0	0	0	0	0
			Nemertea sp. A (LPIL)		0	0	0	0	0
			Nemertea sp. B (LPIL)		0	0	0	0	0
			Nemertea sp. C (LPIL)  Nemertea sp. D (LPIL)		0	0	0	0	0
Annelida			, ,						
	Polycha	aeta							
			Dorvillea (Schistomeringos) rudolphi Dorvilleidae (LPIL)		0	0	0	0	0
			Marphysa sanguinea		0	0	0	0	0
			Glycera americana	PS, EQ	0	0	0	0	0
			Glycera dibranchiata Glycera sp.		0	0	0	0	0
			Ophioglycera sp.		0	0	0	0	0
			Glycinde solitaria	PS, OP	0	0	0	0	0
			Gyptis crypta		0	0	0	0	0
			Hesionidae (LPIL) Podarke obscura		0	0	0	0	0
			Laeonereis culveri		0	0	0	0	0
			Neanthes succinea	PI, OP	0	0	0	0	0
			Nereididae (LPIL) Platynereis dumerilii		0	0	0	0	0
			Drilonereis longa		0	0	0	0	0
			Diopatra cuprea	PS, EQ	0	0	0	0	0
			Eteone sp.		0	0	0	0	0
			Eumida sanguinea Phyllodoce mucosa		0	0	0	0	0
			Phyllodocidae (LPIL)		0	0	0	0	0
			Lepidonotus sp.		0	0	0	0	0
			Grubeosyllis clavata Syllidae (LPIL)		0	0	0	0	0
			Ampharetidae (LPIL)		0	0	0	0	0
			Spiochaetopterus costarum	PS	0	0	0	0	0
			Aphelochaeta sp.		0	0	0	0	0
			Cirratulidae (LPIL) Tharyx sp.		0	0	0	0	0
			Pectinaria gouldii		0	0	0	0	0
			Pectinaria sp.		0	0	0	0	0
			Demonax microphthalmus Sabellaria vulgaris		0	0	0	0	0
			Sabellidae (LPIL)		0	0	0	0	0
			Sabellinae (LPIL)		0	0	0	0	0
			Hydroides dianthus Hydroides diathus		0	0	0	0	0
			Hydroides sp.		0	0	0	0	0
			Serpulidae (LPIL)		0	0	0	0	0
			Apoprionospio pygmaea		0	0	0	0	0
			Dipolydora cauleri Dipolydora socialis		0	0	0	0	0
			Marenzelleria viridis	PS	0	0	0	0	0
			Minuspio sp.	DI 0-	0	0	0	0	0
			Paraprionospio pinnata Polydora cornuta	PI, OP PI, OP	0	0	0	0	0
			Pseudopolydora sp.	1 1, 01	0	0	0	0	0
			Scolelepis texana		0	0	0	0	0
			Spio sp. Spionidae (LPIL)		0	0	0	0	0
			Streblospio benedicti	PI, OP	0	0	0	0	0
			Loimia medusa	PS	0	0	0	0	0
			Loimia sp.		0	0	0	0	0
			Pista cristata Terebellidae (LPIL)		0	0	0	0	0
			Capitella capitata complex Blake	PI, OP	0	0	0	0	0
			Capitella jonesi	PI, OP	0	0	0	0	0
			Capitella sp. Capitellidae (LPIL)	PI, OP	0	0	0	0	0
			Heteromastus filiformis	PI, OP	0	0	0	0	0
			Mediomastus ambiseta	PS, PI, OP	0	0	0	0	0
			Mediomastus californiensis		0	0	0	0	0
			Mediomastus sp. Leitoscoloplos fragilis	PI, OP	0	0	0	0	0
			Leitoscolopios riagilis Leitoscolopios sp.	1 1, 01	0	0	0	0	0
			Orbiniidae (LPIL)		0	0	0	0	0
			Scoloplos rubra		0	0	0	0	0
			Sigambra tentaculata Clymenella torquata	PS, EQ	0	0	0	0	0
	Clitellat	a		, -		-	-	-	-
			Paranais frici		0	0	0	0	0
			Tubificoid Naididae imm. w/o hair setae (LF Tubificoides sp.	PI	0	0	0	0	0
	Î	<u> </u>		1		<u> </u>	· · · · · · · · · · · · · · · · · · ·	<u> </u>	



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Phylum	Class	Order	Taxon	Pollution	LW03-SD563 LW03-SD563-00-10C	LW03-SD564 LW03-SD564-00-10C	LW03-SD567 LW03-SD567-00-10C	LW03-SD571 LW03-SD571-00-10C	LW03-SD574 LW03-SD574-00-10C
,				Classification	09/08/2010	09/08/2010	09/08/2010	09/08/2010	08/31/2010
Arthropoda	Malaco	straca							
	Walaco	Amphipe	oda						
			Aoridae (LPIL)  Monocorophium acherusicum		0	0	0	0	0
			Monocorophium insidiosum		0	0	0	0	0
			Monocorophium sp. Listriella clymenellae	PS	0	0	0	0	0
		Cumace							
			Cyclaspis varians Leucon americanus		0	0	0	0	0
			Cumacea (LPIL)		0	0	0	0	0
		Decapoo	Alpheus sp.	PS, EQ?	0	0	0	0	0
			Palaemonetes sp.	,	0	0	0	0	0
			Panopeidae (LPIL) Panopeus herbstii		0	0	0	0	0
			Rhithropanopeus harrisii		0	0	0	0	0
			Pinnixa sp. Callinectes sp.		0	0	0	0	0
			Portunidae (LPIL)		0	0	0	0	0
			Decapoda (LPIL) Decapoda zoea (larva)		0	0	0	0	0
		Isopoda							
		Leptostr	Edotia triloba aca		0	0	0	0	0
			Leptostraca (LPIL)		0	0	0	0	0
		Mysida	Americamysis bigelowi		0	0	0	0	0
			Americamysis sp.		0	1	0	0	0
			Mysidae (LPIL) Neomysis americana		0	0	0	0	0
		_	Mysidacea (LPIL)		0	0	0	0	0
		Stomato	poda Squilla empusa	PS, EQ	0	0	0	0	0
	Maxillo								
		Sessilia	Balanus improvisus		0	0	0	0	0
			Balanomorpha (LPIL)		0	0	0	0	0
	Entogn	atha	Collembola (LPIL)		0	0	0	0	0
	Unspec	ified							
Mollusca			Crustacea (LPIL)		0	0	0	0	0
	Gastrop	oda							_
			Acteocina canaliculata Acteocina sp.	PS	0	0	0	0	0
			Odostomia engonia		0	0	0	0	0
			Turbonilla interrupta Astyris lunata		0	0	0	0	0
			Nassarius vibex		0	0	0	0	0
			Pyrgocythara plicosa Crepidula fornicata		0	0	0	0	0
			Crepidula plana		0	0	0	0	0
			Cerithiopsis greenii Epitonium rupicola		0	0	0	0	0
			Gastropoda (LPIL)		0	0	0	0	0
	Bivalvia	1	Anadara transversa	PS, EQ	0	0	0	0	0
			Amygdalum papyrium		0	0	0	0	0
			Anomia simplex Pododesmus rudis		0	0	0	0	0
			Crassostrea virginica		0	0	0	0	0
			Lyonsia hyalina Mactridae (LPIL)		0	0	0	0	0
			Mulinia lateralis	OP	0	0	0	0	0
			Petricolaria pholadiformis Tagelus plebeius	EQ	0	0	0	0	0
			Tagelus sp.	PS, EQ?	0	0	0	0	0
			Macoma tenta Tellinidae (LPIL)		0	0	0	0	0
			Gemma gemma	OP PS FO	0	0	0	0	0
			Mercenaria mercenaria Pitar sp.	PS, EQ	0	0	0	0	0
			Veneridae (LPIL) Bivalvia (LPIL)		0	0	0	0	0
Phoronida									
Echinoderm	nata		Phoronida (LPIL)		0	0	0	0	0
			Ophiuroidea (LPIL)		0	0	0	0	0
Chordata			Branchiostoma sp.		0	0	0	0	0
			Total Raw Count Number of Taxa		0	2	0	0	0
					-	-	-	-	-
			PS = Pollution Sensitive, Weisberg et al, 19 PI = Polution Indicator, Weisberg et al. 1997						
			OP = Opportunistic, Ranasinghe et al. 1994						
			EQ = Equlibrium, Ranasinghe et al. 1994 ? = Uncertanty due to taxonomic identificati	on level					
				-					
		Metri	Total Raw Count		0	2	0	0	0
			Total Density (Number per Square Meter	) 	0	29	0	0	0
			Number of Taxa Shannon Diversity Index (Base e)		0	2 0.693	0	0	0
			Shannon Diversity Index (Base 2)		0	1	0	0	0
			Name of Dominant Taxon		N/A	Americamysis sp. / Neomysis americana	N/A	N/A	N/A
			Percent Contribution of Dominant Taxon		0	50.00	0	0	0
			Density (No./Square Meter) Dominant Tal Percent Amphipods	xon	0.00	14 0.00	0.00	0.00	0.00
			Percent Bivalves		0.00	0.00	0.00	0.00	0.00
			Percent Spionid Polychaetes Percent Mediomastus Polychaetes		0.00	0.00 0.00	0.00	0.00	0.00 0.00
			Percent Deposit Feeders		0	0	0	0	0



Train										
Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Context   Cont					Pollution					LW07-F5-SD401
	Phylum	Class	Order	Taxon						
Third   The content   Third   The content   Third   The content   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Third   Th						09/12/2010	09/12/2010	09/11/2010	09/11/2010	09/11/2010
Marchane	Porifera									
Marie				Porifera (LPIL)		0	0	1	0	0
March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   Marc	Cnidaria									
Monte		Hydroze	oa			_	_		_	_
				Hydrozoa (LPIL)		0	0	0	0	0
Manager   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore   Colore		Anthoz	oa			_				
Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manuacide   Manu										
				Anthozoa (LPIL)		0	4	0	0	0
	Nemertea			Name of a fill N		4	4	0	4	-
Memora of CAPS										
Nemotics (COPU)										
Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Marcheston   Mar						i i				
Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael   Marchael										
Projected	Annolida			Nemeriea sp. D (LFIL)		U	U	U	1	U
Contrast Efficience region solvents	Aimenda	Polycha	l							
Department (FI)		1 Olycne	l	Dorvillea (Schistomeringos) rudolphi		0	15	0	0	1
Mathod sergared   PS_EO   0   0   0   0   0   0   0   0   0										
City and marker shows   P.S. CO   0   1   0   0   1   0   0   0   0   0				,						
Operation   O					PS FQ					
Marces p.					. 0, 14					
Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Company   Comp				,						
Control ordinaria										
Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Cont					PS. OP					
Personner CPF     0   0   0   0   0   2					,					
Posterio debiación   P.   O   28   O   O   2										
Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron schrief   Neutron sc										
Nemble secones										
November   Physics demonstrate     0   9   0   1   0   0   0   0   0   0   0   0					PI, OP					
Physical source     0   9   0   1   0   0   0   0   0   0   0   0					,					
Discovers longs   Discovers   PS, EQ   D   D   D   D   D   D   D   D   D				` '						
Departs cupres   PS, EQ   D   D   D   D   D   D   D   D   D										
Election					PS, EQ					
Eurobia sanguinea					. 0, 13					
Psyllatoton murons										
Physiologologic (PHL)				·						
Leptomotus sp.   0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0										
Similar (Pil)										
Syllidate (LPL)										
Ampharedisted (PIL)						1				
Spic-hasteptentor contamm										
Aphilocharia p.   0   0   0   0   0   1					PS					
Circulation (PPL)						0		0	0	
This year, position   Section   This year, position   Pecinaria gooldis   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section   Section										
Petithrania guidalia				, ,						
Pedinaria sp.   0   0   0   0   0   0   0   0   0										
Demonse microphitainus   0   3   0   0   0   0						-				
Sabellation (LPL)										
Sabelliane (LPIL)										
Sabelinae (LPL)										
Hydroides dianthus				` '						
Hydroides dailhus										
Hydroides p.										
Serpuldae (LPL)										
Apoprionospio prygmees										
Dipolydora cauleri										
Dipolydora socialis										
Marezeleria viridis						0	1	0	0	
Minuspio sp.					PS					
Paraprionospio pinnata										
Polydora cornuta					PI, OP					
Pseudopolydora sp.   0   0   0   0   0   0   0   0   0					PI, OP	2	0	0	0	0
Scoletepis texana				•			0	0	0	0
Spionidae (LPIL)						0	0	0	0	0
Streblospio benedicti				Spio sp.		0	0	0	0	0
Loimia medusa				Spionidae (LPIL)		0	0	0	0	0
Loimia sp.   1				Streblospio benedicti	PI, OP	0	1	0	5	9
Pista cristata				Loimia medusa	PS	3	1	0	3	0
Terebellidae (LPIL)				Loimia sp.		1	0	0	0	0
Capitella capitata complex Blake				Pista cristata		0	0			
Capitella jonesi				Terebellidae (LPIL)		0	1			0
Capitella sp.   PI, OP   0   0   0   0   0   0   0   0   0				Capitella capitata complex Blake		0	0			
Capitellidae (LPIL)				Capitella jonesi	PI, OP	0	1	0	0	0
Heteromastus filiformis				Capitella sp.	PI, OP	0	0	0	0	0
Mediomastus ambiseta				Capitellidae (LPIL)		0	0	0	0	0
Mediomastus californiensis   0				Heteromastus filiformis	PI, OP	1	0	0		1
Mediomastus sp.   1   47   1   0   36				Mediomastus ambiseta	PS, PI, OP	0	18	0	2	13
Leitoscoloplos fragilis				Mediomastus californiensis		0		0		0
Leitoscoloplos fragilis				Mediomastus sp.		1	47	1	0	36
Leitoscoloplos sp.   0   0   0   0   0   0   0   0   0					PI, OP	1		0		
Orbiniidae (LPIL)         0         0         0         0         0           Scoloplos rubra         0         0         0         0         1           Sigambra tentaculata         2         1         1         0         0           Clymenella torquata         PS, EQ         0         0         0         0         0           Clitellata         Paranais frici         0         0         0         0         0           Tubificoid Naididae imm. w/o hair setae (LP         PI         0         6         0         1         2				, ,			0			
Scoloplos rubra						0		0	0	
Sigambra tentaculata   2   1   1   0   0   0				· ·		0	0	0	0	
Clymenella torquata         PS, EQ         0         0         0         0         0           Clitellata         Paranais frici         0         0         0         0         0         0           Tubificoid Naididae imm. w/o hair setae (LP         PI         0         6         0         1         2										
Clitellata         Paranais frici         0         0         0         0         0         0         0           Tubificoid Naididae imm. w/o hair setae (LP         PI         0         6         0         1         2					PS, EQ					
Paranais frici         0         0         0         0         0           Tubificoid Naididae imm. w/o hair setae (LP         PI         0         6         0         1         2		Clitellat	a	,	, ,			· · · · · · · · · · · · · · · · · · ·		-
Tubificoid Naididae imm. w/o hair setae (LP PI 0 6 0 1 2				Paranais frici		0	0	0	0	0
					PI					
Tubificoides sp. 0 6 0 0 0		ĺ				0	6	0	0	0



Phylum	Class	Order	Taxon	Pollution	LW07-B5-SD401	LW07-B7-SD401 LW07-B7-SD401-00-10C	LW07-D5-SD401	LW07-F3-SD401	LW07-F5-SD401
-				Classification	09/12/2010	09/12/2010	09/11/2010	09/11/2010	09/11/2010
Arthropoda	Malacos	straca							
		Amphipo	oda Aoridae (LPIL)		0	0	0	0	0
			Monocorophium acherusicum		0	0	0	0	0
			Monocorophium insidiosum Monocorophium sp.		0	0	0	0	0
		Cumacea	Listriella clymenellae	PS	0	0	0	0	0
		Gumaoci	Cyclaspis varians		0	0	0	0	0
			Leucon americanus Cumacea (LPIL)		0	0	0	0	0
		Decapod	a Alpheus sp.	PS, EQ?	0	0	0	0	0
			Palaemonetes sp.	10, 20.	0	0	0	0	0
			Panopeidae (LPIL) Panopeus herbstii		0	2	0	0	0
			Rhithropanopeus harrisii Pinnixa sp.		0	0	0	0	0
			Callinectes sp.		0	0	0	0	0
			Portunidae (LPIL) Decapoda (LPIL)		0	0	0	0	0
		laanada	Decapoda zoea (larva)		0	0	0	0	0
		Isopoda	Edotia triloba		0	0	0	0	1
		Leptostr	aca Leptostraca (LPIL)		0	0	0	0	0
		Mysida							
			Americamysis bigelowi Americamysis sp.		0	0	0	0	0
			Mysidae (LPIL) Neomysis americana		0	0	0	0	0
			Mysidacea (LPIL)		0	0	0	0	0
		Stomato	poda Squilla empusa	PS, EQ	0	0	0	0	0
	Maxillop								
		Sessilia	Balanus improvisus		0	0	0	0	0
	Entogna	atha	Balanomorpha (LPIL)		0	0	0	0	0
			Collembola (LPIL)		0	0	1	0	0
	Unspec		Crustacea (LPIL)		0	0	0	0	0
Mollusca	Gastrop	oda							
			Acteocina canaliculata	PS	21	7	0	20	6
			Acteocina sp.  Odostomia engonia		0 1	0	0 1	0	0 1
			Turbonilla interrupta Astyris lunata		0	0	0	0	1 0
			Nassarius vibex		0	0	0	0	0
			Pyrgocythara plicosa Crepidula fornicata		3	0 18	0	0	0
			Crepidula plana Cerithiopsis greenii		1 0	1 0	0	0	0
			Epitonium rupicola		0	0	0	0	0
	Bivalvia	<u> </u>	Gastropoda (LPIL)		2	2	0	0	0
			Anadara transversa Amygdalum papyrium	PS, EQ	0	3	0	0	0
			Anomia simplex		0	14	0	0	0
			Pododesmus rudis Crassostrea virginica		0	0	0	0	0
			Lyonsia hyalina		1	0	0	0	0
			Mactridae (LPIL) Mulinia lateralis	OP	0	0	0	3 0	0
			Petricolaria pholadiformis Tagelus plebeius	EQ	1 0	0	0	0	0
			Tagelus sp.	PS, EQ?	0	0	0	0	0
			Macoma tenta Tellinidae (LPIL)		0	0	0	0	0
			Gemma gemma Mercenaria mercenaria	OP PS, EQ	0	0	0	0	0
			Pitar sp.	. 5, 14	0	0	0	0	0
			Veneridae (LPIL) Bivalvia (LPIL)		5 3	12 1	0	0	0
Phoronida			Phoronida (LPIL)		25	8	0	5	12
Echinoderm	ata								
Chordata			Ophiuroidea (LPIL)		0	0	0	0	0
			Branchiostoma sp.		0	0	0	0	0
			Total Raw Count		106	319	16	72	121
			Number of Taxa		25	50	9	20	27
		_	PS = Pollution Sensitive, Weisberg et al, 19 PI = Polution Indicator, Weisberg et al. 1997				_		
			OP = Opportunistic, Ranasinghe et al. 1994						
			EQ = Equlibrium, Ranasinghe et al. 1994 ? = Uncertanty due to taxonomic identification	on level					
		Metri							
		wetri	Total Raw Count		106	319	16	72	121
			Total Density (Number per Square Meter) Number of Taxa		1523 25	4583 50	230 9	1034 20	1739 27
			Shannon Diversity Index (Base e)		2.54	3.217	1.895	2.465	2.589
			Shannon Diversity Index (Base 2)		3.665	4.641	2.733	3.556	3.736
			Name of Dominant Taxon Percent Contribution of Dominant Taxon		Phoronida (LPIL) 23.58	Mediomastus sp. 14.73	Paraprionospio pinnata 37.50	Acteocina canaliculata 27.78	Mediomastus sp. 29.75
			Density (No./Square Meter) Dominant Tax	kon	359	675	86	287	517
			Percent Amphipods Percent Bivalves		0.00 9.30	0.00 9.40	0.00	0.00 5.60	0.00 2.50
			Percent Spionid Polychaetes Percent Mediomastus Polychaetes		15.10 0.94	4.70 23.82	37.50 6.25	12.50 2.78	8.30 40.49
			Percent Deposit Feeders		22.17	36.21	50	38.89	63.23



1		1			<u>†</u>	T	1		
Dhydyna	Class	Order	Tayon	Pollution	LW07-H3-SD401	LW07-J4-SD401	LW07-K3-SD401	LW07-K4-SD401	LW07-K5-SD401
Phylum	Class	Order	Taxon	Classification	09/11/2010	09/11/2010	09/11/2010	09/11/2010	LW07-K5-SD401-00-10C 09/11/2010
Porifera					09/11/2010	09/11/2010	09/11/2010	09/11/2010	09/11/2010
Torriera			Porifera (LPIL)		0	0	0	0	1
Cnidaria			,						
	Hydroz								
	L		Hydrozoa (LPIL)		0	0	0	0	0
	Anthoz	oa I	Actiniaria (LPIL)		0	0	0	0	0
			Actiniaria (LF IL)		0	0	0	0	0
			Anthozoa (LPIL)		0	0	0	0	0
Nemertea									
			Nemertea (LPIL)		0	0	1	0	0
			Nemertea sp. A (LPIL) Nemertea sp. B (LPIL)		0	0	0	0	0
			Nemertea sp. C (LPIL)		0	0	0	0	0
			Nemertea sp. D (LPIL)		0	0	0	0	0
Annelida									
	Polycha	eta							_
			Dorvillea (Schistomeringos) rudolphi Dorvilleidae (LPIL)		0	0	0	0	0
			Marphysa sanguinea		0	0	0	0	0
			Glycera americana	PS, EQ	0	0	0	0	0
			Glycera dibranchiata	_	0	0	0	0	0
			Glycera sp.		0	0	0	0	0
	<u> </u>		Ophioglycera sp.	DC CD	0	0	0	0	0
	<del>                                     </del>		Glycinde solitaria Gyptis crypta	PS, OP	2 0	0	0	1 0	1 2
	<u> </u>		Hesionidae (LPIL)		0	0	0	0	0
	<u>L</u>		Podarke obscura		0	2	0	0	0
			Laeonereis culveri		0	0	0	0	0
	<u> </u>		Neanthes succinea	PI, OP	0	0	0	0	0
	<del>                                     </del>		Nereididae (LPIL)		0	0	0	0	0
	<del>                                     </del>		Platynereis dumerilii Drilonereis longa		0	0	0	0	0
			Diopatra cuprea	PS, EQ	0	0	0	0	0
			Eteone sp.	· ·	0	0	0	0	0
			Eumida sanguinea		0	0	0	0	0
			Phyllodoce mucosa		0	0	0	0	0
			Phyllodocidae (LPIL) Lepidonotus sp.		0	0	0	0	0
			Grubeosyllis clavata		0	0	0	0	0
			Syllidae (LPIL)		0	0	0	0	0
			Ampharetidae (LPIL)		0	0	0	0	0
			Spiochaetopterus costarum	PS	0	0	0	0	1
			Aphelochaeta sp.		0 4	0	0 28	0 27	0 2
			Cirratulidae (LPIL) Tharyx sp.		0	2		14	0
			Pectinaria gouldii		1	1	0	0	0
			Pectinaria sp.		0	0	0	0	0
			Demonax microphthalmus		0	0	0	0	0
			Sabellaria vulgaris		0	0	0	0	0
			Sabellidae (LPIL) Sabellinae (LPIL)		0	0	0	0	0
			Hydroides dianthus		0	0	0	0	0
			Hydroides diathus		0	0	0	0	0
			Hydroides sp.		0	0	0	0	0
			Serpulidae (LPIL)		0	0	0	0	0
	<del>                                     </del>		Apoprionospio pygmaea Dipolydora cauleri		0	0	0	0	0
	<u> </u>		Dipolydora caulen  Dipolydora socialis		0	0	0	0	0
			Marenzelleria viridis	PS	0	0	0	0	0
			Minuspio sp.		0	0	0	0	0
	<u> </u>		Paraprionospio pinnata	PI, OP	7	18	6	4	11
	1		Polydora cornuta Pseudopolydora sp.	PI, OP	0	0	0	0	0
	<u> </u>		Scolelepis texana		0	0	0	0	0
			Spio sp.		0	0	0	0	0
			Spionidae (LPIL)	-	0	0	0	1	0
	ļ		Streblospio benedicti	PI, OP	14	22	13	2	7
	<del>                                     </del>		Loimia medusa	PS	0	0	0	0	0
	<u> </u>		Loimia sp. Pista cristata		0	0	0	0	0
	<u> </u>		Terebellidae (LPIL)		0	0	0	0	0
			Capitella capitata complex Blake	PI, OP	0	0	0	0	0
	<b>.</b>		Capitella jonesi	PI, OP	0	0	0	0	0
			Capitella sp. Capitellidae (LPIL)	PI, OP	0	0	0	0	0
	<del> </del>		Heteromastus filiformis	PI, OP	1	0	0	0	0
	L		Mediomastus ambiseta	PS, PI, OP	1	1	0	1	4
			Mediomastus californiensis		0	0	0	0	0
			Mediomastus sp.		5	8	7	0	3
	<u> </u>		Leitoscoloplos fragilis	PI, OP	0	1	0	0	0
	<del>                                     </del>		Leitoscoloplos sp. Orbiniidae (LPIL)		0	0	0	0	0
			Scoloplos rubra		0	0	0	0	0
			Sigambra tentaculata		1	1	0	2	2
-			Clymenella torquata	PS, EQ	0	0	0	0	0
	Clitellat	a	Donne in friei		_	_	_		_
	1		Paranais frici Tubificoid Naididae imm. w/o hair setae (LP	PI	0 1	0 4	0	0	0
	<u> </u>		Tubificoides sp.	111	0	0	0	0	0
		1	-1				<u></u>		



Pleaters	01	0-4	<b>-</b>	Pollution	LW07-H3-SD401	LW07-J4-SD401	LW07-K3-SD401	LW07-K4-SD401	LW07-K5-SD401
Phylum	Class	Order	Taxon	Classification	LW07-H3-SD401-00-10C 09/11/2010	LW07-J4-SD401-00-10C 09/11/2010	LW07-K3-SD401-00-10C 09/11/2010	LW07-K4-SD401-00-10C 09/11/2010	LW07-K5-SD401-00-10C 09/11/2010
Arthropoda	Malacos	straca							
	Walacos	Amphipo							
			Aoridae (LPIL)  Monocorophium acherusicum		0	0	0	0	0
			Monocorophium insidiosum  Monocorophium sp.		0	0	0	0	0
			Listriella clymenellae	PS	0	0	0	0	0
		Cumace	Cyclaspis varians		0	0	0	0	0
			Leucon americanus Cumacea (LPIL)		1 0	0	0	0	0
		Decapoo	a						
			Alpheus sp. Palaemonetes sp.	PS, EQ?	0	0	0	0	0
			Panopeidae (LPIL) Panopeus herbstii		0	0	0	0	0
			Rhithropanopeus harrisii		0	0	0	0	0
			Pinnixa sp. Callinectes sp.		0	0	0	0	0
			Portunidae (LPIL)		0	0	0	0	0
			Decapoda (LPIL) Decapoda zoea (larva)		0	0	0	0	0
		Isopoda	Edotia triloba		1	0	0	0	0
		Leptostr	aca						
		Mysida	Leptostraca (LPIL)		0	0	0	0	0
		_	Americamysis bigelowi Americamysis sp.		1 0	0	2	0	1 0
			Mysidae (LPIL)		0	0	0	0	0
			Neomysis americana Mysidacea (LPIL)		0	0	0	0	0
		Stomato	poda	DO FO		-	-		
	Maxillo		Squilla empusa	PS, EQ	0	0	0	0	0
		Sessilia	Balanus improvisus		0	0	0	0	0
	_		Balanomorpha (LPIL)		0	0	0	0	0
	Entogna	atha	Collembola (LPIL)		0	0	0	0	0
	Unspec	ified	Crustacea (LPIL)		0	0	0	0	0
Mollusca			Ciustacea (LPIL)		0	0	0	0	0
	Gastrop	oda	Acteocina canaliculata	PS	5	5	4	1	2
			Acteocina sp.		0	0	0	0	0
			Odostomia engonia Turbonilla interrupta		0	0	0	0	0
			Astyris lunata Nassarius vibex		0	0	0	0	0
			Pyrgocythara plicosa		0	0	0	0	0
			Crepidula fornicata Crepidula plana		0	0	0	0	0
			Cerithiopsis greenii Epitonium rupicola		0	0	0	0	0
			Gastropoda (LPIL)		0	0	0	0	0
	Bivalvia	1	Anadara transversa	PS, EQ	0	0	0	0	0
			Amygdalum papyrium		0	0	0	0	0
			Anomia simplex Pododesmus rudis		0	0	0	0	0
			Crassostrea virginica Lyonsia hyalina		0	0	0	0	0
			Mactridae (LPIL)	OB	2	0	0	1	1
			Mulinia lateralis Petricolaria pholadiformis	OP	0	0	0	0	0
			Tagelus plebeius Tagelus sp.	EQ PS, EQ?	1 0	0	0	0	0
			Macoma tenta	,	0	0	0	0	0
			Tellinidae (LPIL) Gemma gemma	OP	0	0	0	1 0	0
			Mercenaria mercenaria Pitar sp.	PS, EQ	0	0	0	1 0	0
			Veneridae (LPIL)		0	1	0	0	0
Phoronida		<u> </u>	Bivalvia (LPIL)		0	0	1	0	0
Echinoderm	nata	_	Phoronida (LPIL)		2	3	5	3	0
	-asa		Ophiuroidea (LPIL)		0	0	1	0	0
Chordata			Branchiostoma sp.		0	0	0	0	0
			Total Raw Count		52	71	75	59	39
			Number of Taxa		52 18	71 15	75 13	59 13	39 14
			PS = Pollution Sensitive, Weisberg et al, 19	97					
			PI = Polution Indicator, Weisberg et al. 1997	7					
			OP = Opportunistic, Ranasinghe et al. 1994 EQ = Equlibrium, Ranasinghe et al. 1994						
			? = Uncertanty due to taxonomic identification	on level					
		Metri		I					
			Total Raw Count  Total Density (Number per Square Meter)	)	52 747	71 1020	75 1078	59 848	39 560
			Number of Taxa Shannon Diversity Index (Base e)		18 2.456	15 2.061	13 1.997	13 1.746	14 2.269
			Shannon Diversity Index (Base 2)		3.543	2.973	2.881	2.519	3.274
			Name of Dominant Taxon		Streblospio benedicti	Streblospio benedicti	Cirratulidae (LPIL)	Cirratulidae (LPIL)	Paraprionospio pinnata
			Percent Contribution of Dominant Taxon		26.92	30.99	37.33	45.76	28.21
			Density (No./Square Meter) Dominant Ta. Percent Amphipods	AUII	201 0.00	316 0.00	402 0.00	388 0.00	158 0.00
			Percent Bivalves Percent Spionid Polychaetes		5.70 40.40	1.40 56.30	1.30 25.30	10.20 11.90	2.60 46.20
			Percent Mediomastus Polychaetes		11.54	12.68	9.33	1.69	17.52
			Percent Deposit Feeders	l	45.19	52.12	66	77.11	47.44



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Dissilation	01	0	T	Pollution	LW07-L2-SD401-01	LW07-H1-SD401-01	LW07-K1-SD401	LW07-L5-SD401	LW07-M1-SD401
Phylum	Class	Order	Taxon	Classification	09/11/2010	W07-H1-SD401-00-10C-0 09/10/2010	09/10/2010	09/11/2010	09/10/2010
Porifera					09/11/2010	09/10/2010	09/10/2010	09/11/2010	09/10/2010
Fornera			Porifera (LPIL)		0	1	1	0	1
Cnidaria			T Officia (EF IE)				'	Ü	
	Hydroze	oa							
			Hydrozoa (LPIL)		0	0	0	0	1
	Anthoz	oa							
			Actiniaria (LPIL)		0	0	1	0	0
			Actiniaria sp. A		0	0	0	0	0
			Anthozoa (LPIL)		0	0	0	0	0
Nemertea			Name of a fill N		0	0	2	0	•
			Nemertea (LPIL) Nemertea sp. A (LPIL)		0	0	0	0	0
			Nemertea sp. B (LPIL)		0	0	0	0	0
			Nemertea sp. C (LPIL)		0	0	0	0	0
			Nemertea sp. D (LPIL)		0	0	0	0	0
Annelida									
	Polycha	eta							
			Dorvillea (Schistomeringos) rudolphi		0	0	0	0	0
			Dorvilleidae (LPIL)		0	0	0	0	0
			Marphysa sanguinea		0	0	0	0	0
			Glycera americana	PS, EQ	0	0	0	0	0
			Glycera dibranchiata		0	0	0	0	1 0
			Glycera sp.		0	0	0	0	0
			Ophioglycera sp. Glycinde solitaria	PS, OP	0	0	1	0	0
			Gyptis crypta	1 0, 01	0	0	0	0	0
			Hesionidae (LPIL)		0	0	0	0	0
			Podarke obscura		0	0	0	0	0
			Laeonereis culveri		0	0	0	0	0
			Neanthes succinea	PI, OP	0	0	0	0	0
			Nereididae (LPIL)		0	0	0	0	0
			Platynereis dumerilii		0	0	0	0	0
			Drilonereis longa		0	0	0	0	0
			Diopatra cuprea	PS, EQ	0	0	0	0	0
			Eteone sp.		0	0	0	0	0
			Eumida sanguinea Phyllodoce mucosa		0	0	0	0	0
			Phyllodocidae (LPIL)		0	0	0	0	0
			Lepidonotus sp.		0	0	0	0	0
			Grubeosyllis clavata		0	0	0	0	0
			Syllidae (LPIL)		0	0	0	0	0
			Ampharetidae (LPIL)		0	0	0	0	0
			Spiochaetopterus costarum	PS	0	0	0	0	1
			Aphelochaeta sp.		0	0	0	0	0
			Cirratulidae (LPIL)		0	0	0	0	0
			Tharyx sp.		1	0	0	0	13
			Pectinaria gouldii		0	0	0	0	1
			Pectinaria sp.		0	0	0	0	0
			Demonax microphthalmus		0	0	0	0	0
			Sabellaria vulgaris Sabellidae (LPIL)		0	0	0	0	0
			Sabellinae (LPIL)		0	0	0	0	0
			Hydroides dianthus		0	0	0	0	0
			Hydroides diathus		0	0	0	0	0
			Hydroides sp.		0	0	0	0	0
			Serpulidae (LPIL)		0	0	0	0	0
			Apoprionospio pygmaea		0	0	0	0	0
			Dipolydora cauleri		0	0	0	0	0
			Dipolydora socialis		0	0	0	0	0
	1		Marenzelleria viridis	PS	0	0	0	0	0
			Minuspio sp. Paraprionospio pinnata	PI, OP	4	0	0	3	1
			Polydora cornuta	PI, OP	0	0	2	0	1
			Pseudopolydora sp.	, 🗸.	0	0	0	0	0
			Scolelepis texana		0	0	0	0	0
			Spio sp.		0	0	0	0	0
			Spionidae (LPIL)		0	0	0	0	0
			Streblospio benedicti	PI, OP	4	34	41	4	52
			Loimia medusa	PS	0	0	0	0	0
			Loimia sp.		0	0	0	0	0
			Pista cristata		0	0	0	0	0
			Terebellidae (LPIL) Capitella capitata complex Blake	PI, OP	0	0	1	0	1
			Capitella jonesi	PI, OP	0	0	2	0	0
			Capitella sp.	PI, OP	0	1	0	0	0
			Capitellidae (LPIL)		0	0	0	0	0
			Heteromastus filiformis	PI, OP	0	0	0	0	0
			Mediomastus ambiseta	PS, PI, OP	0	2	0	0	7
			Mediomastus californiensis		0	0	0	0	0
			Mediomastus sp.		9	0	2	0	2
			Leitoscoloplos fragilis	PI, OP	0	0	0	0	0
			Leitoscoloplos sp.		0	0	0	1	0
			Orbiniidae (LPIL)		0	0	0	0	0
			Scoloplos rubra Sigambra tentaculata		0 1	0	0	0	0
	<b></b>		Clymenella torquata	PS, EQ	0	0	0	0	0
			,	. 5, 24	<u> </u>		<u> </u>		•
	Clitellat	а							
	Clitellat	а	Paranais frici		0	0	0	0	0
	Clitellat	a	Paranais frici Tubificoid Naididae imm. w/o hair setae (LP	PI	0	0	0	0	0 2



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Phylum	Class	Order	Taxon	Pollution Classification	LW07-L2-SD401-01 W07-L2-SD401-01-10C-0	LW07-H1-SD401-01 W07-H1-SD401-00-10C-0	LW07-K1-SD401 LW07-K1-SD401-00-100	LW07-L5-SD401 LW07-L5-SD401-00-10C	LW07-M1-SD401 LW07-M1-SD401-00-10C
A // 1				Olassification	09/11/2010	09/10/2010	09/10/2010	09/11/2010	09/10/2010
Arthropoda	Malacos	straca							
		Amphipo			0	0	0	0	0
			Aoridae (LPIL)  Monocorophium acherusicum		0	0	0	0	0
			Monocorophium insidiosum		0	0	0	0	0
			Monocorophium sp. Listriella clymenellae	PS	0	0	0	0	0
		Cumace							
			Cyclaspis varians Leucon americanus		0	0	0	0	0
			Cumacea (LPIL)		0	0	0	0	0
		Decapoo	Alpheus sp.	PS, EQ?	0	0	0	0	0
			Palaemonetes sp.	,	0	0	0	0	0
			Panopeidae (LPIL) Panopeus herbstii		0	0	0	0	0
			Rhithropanopeus harrisii		0	0	0	0	0
			Pinnixa sp.		0	0	0	0	0
			Callinectes sp. Portunidae (LPIL)		0	0	0	0	0
			Decapoda (LPIL)		0	0	0	1	0
		Isopoda	Decapoda zoea (larva)		0	0	0	0	0
			Edotia triloba		0	0	0	0	0
		Leptostr	Leptostraca (LPIL)		0	0	0	0	0
		Mysida							
			Americamysis bigelowi Americamysis sp.		0	0	0	0	0
			Mysidae (LPIL)		0	0	0	0	0
			Neomysis americana		0	0	0	0	0
		Stomato	Mysidacea (LPIL) poda		U	U	<u> </u>	U	U
	M ***	nod-	Squilla empusa	PS, EQ	0	0	0	0	0
	Maxillo	poda Sessilia							
			Balanus improvisus		0	0	0	0	0
	Entogna	l atha	Balanomorpha (LPIL)		0	0	0	0	0
			Collembola (LPIL)		0	0	0	0	0
	Unspec	ified	Crustacea (LPIL)		0	0	0	0	0
Mollusca					Ŭ	Ŭ	Ŭ	Ŭ	Ŭ
	Gastrop	ooda	Acteocina canaliculata	PS	6	2	0	3	1
			Acteocina sp.	FO	0	0	0	0	0
			Odostomia engonia		0	0	0	0	0
			Turbonilla interrupta Astyris lunata		0	0	0	0	0
			Nassarius vibex		0	0	0	0	0
			Pyrgocythara plicosa Cronidula fornicata		0	0	0	0	0
			Crepidula fornicata Crepidula plana		0	0	0	0	0
			Cerithiopsis greenii		0	0	0	0	0
			Epitonium rupicola Gastropoda (LPIL)		0	0	0	0	0
	Bivalvia	a		DO 50					
			Anadara transversa Amygdalum papyrium	PS, EQ	0	0	0	0	0
			Anomia simplex		0	0	0	0	0
			Pododesmus rudis Crassostrea virginica		0	0	0	0	0
			Lyonsia hyalina		0	0	0	0	0
			Mactridae (LPIL)	0.0	1	0	0	2	0
			Mulinia lateralis Petricolaria pholadiformis	OP	0	0	0	0	0
			Tagelus plebeius	EQ	0	0	0	0	0
	<u></u>	<u></u>	Tagelus sp.  Macoma tenta	PS, EQ?	0	0	0	0	0
			Tellinidae (LPIL)		0	0	0	0	0
			Gemma gemma Mercenaria mercenaria	OP PS, EQ	0	0	0	0	0
			Pitar sp.	-,	0	0	0	0	0
			Veneridae (LPIL) Bivalvia (LPIL)		0	0	1 0	0	0
Phoronida									
Echinoderm	 nata		Phoronida (LPIL)		1	0	0	0	0
			Ophiuroidea (LPIL)		0	0	0	0	0
Chordata			Branchiostoma sp.		0	0	0	0	0
			·			-			
			Total Raw Count Number of Taxa		29 10	40 5	54 11	15 7	87 16
			ITANIBO OF TANA		10	3	11	,	10
			PS = Pollution Sensitive, Weisberg et al. 19						
			PI = Polution Indicator, Weisberg et al. 1997 OP = Opportunistic, Ranasinghe et al. 1994						
			EQ = Equlibrium, Ranasinghe et al. 1994						
	<u></u>	<u></u>	? = Uncertanty due to taxonomic identification	on ievei					<u> </u>
		Metri					_		-
			Total Raw Count  Total Density (Number per Square Meter)	<u> </u> 	29 417	40 575	54 776	15 216	87 1250
			Number of Taxa		10	5	11	7	16
			Shannon Diversity Index (Base e) Shannon Diversity Index (Base 2)		1.932 2.788	0.622 0.898	1.092 1.576	1.807 2.606	1.533 2.211
			onamion Diversity muck (Dase 2)		2.100	0.090	1.376	2.000	۷.۷۱۱
			Name of Dominant Taxon		Mediomastus sp.	Streblospio benedicti	Streblospio benedicti	Streblospio benedicti	Streblospio benedicti
			Percent Contribution of Dominant Taxon Density (No./Square Meter) Dominant Tax		31.03 129	85.00 489	75.93 589	26.67 57	59.77 747
			Percent Amphipods		0.00	0.00	0.00	0.00	0.00
			Percent Bivalves Percent Spionid Polychaetes		10.20 27.60	0.00 85.00	1.90 79.60	20.00 46.70	1.10 62.10
			Percent Mediomastus Polychaetes		31.03	5.00	3.70	0.00	10.35
			Percent Deposit Feeders		51.72	50	50.92	30	61.49



Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Pro		1	ı		_	•	1	1	T	
	Dhulum	Class	Order	Tayon	Pollution	LW07-SD401	LW07-SD402	LW07-SD403-01	LW07-SD404	LW03-SD534-02
Perfect   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profession   Profes	Pnylum	Class	Order	Taxon	Classification					
Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Professor   Prof	Porifera					03/11/2010	03/11/2010	03/11/2010	03/10/2010	03/01/2010
Memories	Tornora			Porifera (LPIL)		0	0	0	0	0
Money   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   Marc	Cnidaria			,						
National		Hydroz	oa							
Montream   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   March   M				Hydrozoa (LPIL)		0	1	0	0	0
Memoria of Part		Anthoz	oa I	Antining (LDIII)		4	2	2	2	2
Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Minimus   Mini						<u> </u>				
Number				·						
Memorane pt 47/19	Nemertea			,						
Newmont   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Description   Desc				,						
Newtonia of CPR3										
Numerica is C in Print										
Appendix						<u> </u>				
Description (Pull)	Annelida			(= 1=)		_	<u> </u>			<u> </u>
Devotation (PT)		Polycha	aeta							
Maniphyses organizes										
Cycles a New Carelans				·						
Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control and   Cycles all control				-	PS FO					
Chicagorous as.   0   0   0   0   0   0   0   0   0					10, 20					
Colorade contrains						0				
Displace_Opts						-				
Hesenstee CPES    C					PS, OP					
Notation contents										
November suches    0   0   0   0   0   0   0   0   0		<u> </u>								
Neember socrieva										
Majoritate description					PI, OP					
Distances corpos				` '						
Disparse cupres   PS, EQ   0   0   0   0   0   0   0   0   0										
Researce spurpless   0					DQ E0					
Eurodic congulations   0					F3, EQ					
Psychocodes (LPIA)										
Lepiconcus sp.   0   0   0   0   0   0   0   0   0				Phyllodoce mucosa		0	0	0	0	0
Grubeneyris cirones   0   0   0   0   0   0   0   0   0										
Syltitate (LPL)										
Amphasedote (PIPL)										
Spichardsotparture contenum										
Cirradidae (PIPL)					PS					
Tharps sp.   0   5   0   3   0				Aphelochaeta sp.		0	0	0	0	0
Percinaria sp.   0										
Pentinant sp.   0										
Demonax incorphishmus										
Sabellaria vulgaria										
Sabelina (PIL)				·						
Hydroides dianthus										
Hydroides dathus										
Hydrotices sp.   0										
Serpulidae (LPIL)				•						
Dipolydora socialis										
Dipolydora socialis										
Marenzelleria viridis										
Minuspio sp.   0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0					DG					
Paraprionospio pinnata		<u> </u>			F٥					
Polydora comuta					PI, OP					
Scolelepis texana					PI, OP					
Spio sp.   0		ļ								
Spionidae (LPIL)										
Streblospio benedicti		<u> </u>								
Loimia medusa					PI, OP					
Pista cristata										
Terebellidae (LPIL)	·	ļ								
Capitella capitata complex Blake										
Capitella jonesi					PI OP					
Capitella sp.										
Heteromastus filiformis					· '					
Mediomastus ambiseta         PS, PI, OP         0         29         0         0         0           Mediomastus californiensis         0         0         0         0         0         0           Mediomastus sp.         1         19         1         35         0           Leitoscoloplos fragilis         PI, OP         0         1         0         0         0           Leitoscoloplos sp.         0         0         0         0         0         0         0           Orbiniidae (LPIL)         0         0         0         0         0         0         0           Scoloplos rubra         0         0         0         0         0         0         0           Sigambra tentaculata         0         0         0         0         0         0         0           Clitellata         Paranais frici         0         0         0         0         0         0           Tubificoid Naididae imm. w/o hair setae (LP         PI         3         4         1         0         0	-									
Mediomastus californiensis         0         0         0         0         0           Mediomastus sp.         1         19         1         35         0           Leitoscoloplos fragilis         PI, OP         0         1         0         0         0           Leitoscoloplos sp.         0         0         0         0         0         0         0           Orbiniidae (LPIL)         0         0         0         0         0         0         0         0           Scoloplos rubra         0         0         0         0         0         0         0         0           Sigambra tentaculata         0         0         0         0         0         0         0         0           Clymenella torquata         PS, EQ         0         0         0         0         0         0         0           Clitellata         Paranais frici         0         0         0         0         0         0         0           Tubificoid Naididae imm. w/o hair setae (LP         PI         3         4         1         0         0         0										
Mediomastus sp.		<b> </b>			PS, PI, OP					
Leitoscoloplos fragilis										
Leitoscoloplos sp.   0   0   0   0   0   0   0   0   0				· ·	PI, OP					
Scoloplos rubra         0         0         0         0         0           Sigambra tentaculata         0         0         0         0         0         0           Clymenella torquata         PS, EQ         0         0         0         0         0         0           Clitellata         Paranais frici         0         0         0         0         0         0         0           Tubificoid Naididae imm. w/o hair setae (LP         PI         3         4         1         0         0         0				Leitoscoloplos sp.		0	0	0	0	0
Sigambra tentaculata         0         0         0         0         0           Clymenella torquata         PS, EQ         0         0         0         0         0           Clitellata         Paranais frici         0         0         0         0         0         0           Tubificoid Naididae imm. w/o hair setae (LP         PI         3         4         1         0         0		<u> </u>								
Clymenella torquata         PS, EQ         0         0         0         0           Clitellata         Paranais frici           Paranais frici         0         0         0         0         0           Tubificoid Naididae imm. w/o hair setae (LP         PI         3         4         1         0         0										
Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata         Clitellata		1			PS FO					
Paranais frici         0         0         0         0         0           Tubificoid Naididae imm. w/o hair setae (LP         PI         3         4         1         0         0		Clitellat	ia	o.j.monona torquata	10, LQ	0	<u> </u>	U	<u> </u>	U
`				Paranais frici		0	0	0	0	0
Tubificoides sp. 0 0 0 0					PI					
				Tubificoides sp.		0	0	0	0	0



				Dellistics.	LW07-SD401	LW07-SD402	LW07-SD403-01	LW07-SD404	LW03-SD534-02
Phylum	Class	Order	Taxon	Pollution Classification	LW07-SD401-00-10C 09/11/2010	LW07-SD402-00-10C 09/11/2010	LW07-SD403-00-10C-01 09/11/2010	LW07-SD404-00-10C 09/10/2010	LW03-SD534-02-10C 09/01/2010
Arthropoda	Malacos	straca							
		Amphipo	oda Aoridae (LPIL)		0	0	0	0	0
			Monocorophium acherusicum		0	0	0	0	0
			Monocorophium insidiosum Monocorophium sp.		0	0	0	0	0
		Cumacea	Listriella clymenellae	PS	0	0	0	0	0
		Guillage	Cyclaspis varians		0	0	1	0	0
			Leucon americanus Cumacea (LPIL)		0 1	0	0	0	0
		Decapod	Alpheus sp.	PS, EQ?	1	0	0	0	0
			Palaemonetes sp.	·	0	0	0	0	0
			Panopeidae (LPIL) Panopeus herbstii		0	0	0	0	0
			Rhithropanopeus harrisii Pinnixa sp.		0	0	0	0	0
			Callinectes sp. Portunidae (LPIL)		0	0	0	0	0
			Decapoda (LPIL)		1	0	0	0	0
		Isopoda	Decapoda zoea (larva)		0	0	0	0	0
		Leptostr	Edotia triloba		0	0	0	0	0
			Leptostraca (LPIL)		0	0	0	0	0
		Mysida	Americamysis bigelowi		0	0	0	0	0
			Americamysis sp. Mysidae (LPIL)		0	0	0	0	0
			Neomysis americana		0	0	0	0	0
		Stomato			-			-	
	Maxillo	ooda	Squilla empusa	PS, EQ	0	0	0	0	0
_		Sessilia	Balanus improvisus		0	0	0	0	0
		-db	Balanomorpha (LPIL)		0	0	0	0	0
	Entogna		Collembola (LPIL)		0	0	0	0	0
	Unspec		Crustacea (LPIL)		0	0	0	0	0
Mollusca	Cantrar							-	
	Gastrop	ода	Acteocina canaliculata	PS	2	2	0	3	0
			Acteocina sp.  Odostomia engonia		0	0	0	0	0
			Turbonilla interrupta Astyris lunata		0	0	0	0	0
			Nassarius vibex		0	0	0	0	0
			Pyrgocythara plicosa Crepidula fornicata		0	0	0	0	0
			Crepidula plana Cerithiopsis greenii		0	0	0	0	0
			Epitonium rupicola		0	0	0	0	0
	Bivalvia	1	Gastropoda (LPIL)		1	0	0	0	0
			Anadara transversa Amygdalum papyrium	PS, EQ	0	0	0	0	0
			Anomia simplex Pododesmus rudis		0	0	0	0	0
			Crassostrea virginica		0	0	0	0	0
			Lyonsia hyalina Mactridae (LPIL)		0	0	0 3	0	0
			Mulinia lateralis Petricolaria pholadiformis	OP	0	0	0	0	0
			Tagelus plebeius	EQ.	0	0	0	0	0
			Tagelus sp.  Macoma tenta	PS, EQ?	0	0	0	0	0
			Tellinidae (LPIL) Gemma gemma	OP	0	0	0	0	0
			Mercenaria mercenaria Pitar sp.	PS, EQ	0	0	0	0	0
			Veneridae (LPIL)		0	1	1	1	0
Phoronida			Bivalvia (LPIL)		0	0	0	2	0
Echinoderm	nata		Phoronida (LPIL)		0	3	0	0	0
Chordata	-		Ophiuroidea (LPIL)		0	0	0	0	0
GHOIGIAGA			Branchiostoma sp.		0	0	0	0	0
			Total Raw Count		45	146	42	104	0
_			Number of Taxa		12	17	10	9	0
			PS = Pollution Sensitive, Weisberg et al, 19						
			PI = Polution Indicator, Weisberg et al. 1997 OP = Opportunistic, Ranasinghe et al. 1994						
			EQ = Equlibrium, Ranasinghe et al. 1994 ? = Uncertanty due to taxonomic identification	on level					
		Metri							
		wetri	Total Raw Count		45	146	42	104	0
	_		Total Density (Number per Square Meter) Number of Taxa	)	647 12	2098 17	603 10	1494 9	0
			Shannon Diversity Index (Base e) Shannon Diversity Index (Base 2)		1.337 1.929	1.784 2.574	1.125 1.622	1.471 2.123	0
			Shannon Diversity muck (Dase 2)		1.323	2.314	1.022	2.123	U
			Name of Davis T		Strobloonia haz - 41-41	Strobloonia har - 41-41	Strobloonia har8-4"	Strobloonie han11-4'	N//A
			Name of Dominant Taxon Percent Contribution of Dominant Taxon		Streblospio benedicti 68.89	Streblospio benedicti 45.89	Streblospio benedicti 73.81	Streblospio benedicti 42.31	N/A 0
			Density (No./Square Meter) Dominant Tax Percent Amphipods	xon	445 0.00	963 0.00	445 2.40	632 0.00	0.00
			Percent Bivalves		0.00	0.70	11.90	2.90	0.00
			Percent Spionid Polychaetes Percent Mediomastus Polychaetes		71.10	50.00 32.87	73.80	47.10 33.65	0.00
			Percent Deposit Feeders		46.67	66.78	41.66	69.71	0



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Phylum	Class	Order	Taxon	Pollution	LW03-SD534-03 LW03-SD534-03-10C	LW03-SD550-02 LW03-SD550-02-10C	LW03-SD550-03 LW03-SD550-03-10C	LW03-SD558-02 LW03-SD558-02-10C	LW03-SD558-03 LW03-SD558-03-10C
,	J.acc	0.00.	12.5.	Classification	09/01/2010	09/08/2010	09/08/2010	09/08/2010	09/08/2010
Porifera									
			Porifera (LPIL)		0	0	0	0	0
Cnidaria	Hydroze	22							
	nyuroz	Ja	Hydrozoa (LPIL)		0	0	0	0	0
	Anthoz	oa	7 ,		-	-	-	-	-
			Actiniaria (LPIL)		0	0	0	0	0
			Actiniaria sp. A		0	0	0	0	0
Nemertea			Anthozoa (LPIL)		0	0	0	0	0
			Nemertea (LPIL)		0	0	0	0	0
			Nemertea sp. A (LPIL)		0	0	0	0	0
			Nemertea sp. B (LPIL)		0	0	0	0	0
			Nemertea sp. C (LPIL) Nemertea sp. D (LPIL)		0	0	0	0	0
Annelida			Nemerica Sp. D (LFTL)		0	U	U	U	0
	Polycha	eta							
			Dorvillea (Schistomeringos) rudolphi		6	0	0	0	0
			Dorvilleidae (LPIL)		0	0	0	0	0
			Marphysa sanguinea Glycera americana	PS, EQ	0	0	0	0	0
			Glycera dibranchiata	F 5, LQ	0	0	0	0	0
			Glycera sp.		0	0	0	0	0
			Ophioglycera sp.		0	0	0	0	0
	1		Glycinde solitaria	PS, OP	2	0	0	0	0
			Gyptis crypta Hesionidae (LPIL)		3 4	0	0	0	0
	<u> </u>		Podarke obscura		5	0	0	0	0
	<u>L_</u>		Laeonereis culveri		0	0	0	0	0
			Neanthes succinea	PI, OP	0	0	0	0	0
	1		Nereididae (LPIL)		0	0	0	0	0
	1		Platynereis dumerilii		0	0	0	0	0
			Drilonereis longa Diopatra cuprea	PS, EQ	0	0	0	0	0
	<u> </u>		Eteone sp.	ru, eu	0	0	0	0	0
	L		Eumida sanguinea		0	0	0	0	0
			Phyllodoce mucosa		0	0	0	0	0
			Phyllodocidae (LPIL)		0	0	0	0	0
			Lepidonotus sp.		0	0	0	0	0
			Grubeosyllis clavata Syllidae (LPIL)		0	0	0	0	0
			Ampharetidae (LPIL)		0	0	0	0	0
			Spiochaetopterus costarum	PS	0	0	0	0	0
			Aphelochaeta sp.		0	0	0	0	0
			Cirratulidae (LPIL)		0	0	0	0	0
			Tharyx sp. Pectinaria gouldii		0	0	0	0	0
			Pectinaria sp.		0	0	0	0	0
			Demonax microphthalmus		0	0	0	0	0
			Sabellaria vulgaris		0	0	0	0	0
			Sabellidae (LPIL)		0	0	0	0	0
			Sabellinae (LPIL)		0	0	0	0	0
			Hydroides dianthus Hydroides diathus		0	0	0	0	0
			Hydroides sp.		2	0	0	0	0
			Serpulidae (LPIL)		0	0	0	0	0
	<u> </u>		Apoprionospio pygmaea		0	0	0	0	0
	1		Dipolydora cauleri		0	0	0	0	0
			Dipolydora socialis  Marenzelleria viridis	PS	0	0	0	0	0
			Minuspio sp.		0	0	0	0	0
			Paraprionospio pinnata	PI, OP	7	0	0	0	0
	<u> </u>		Polydora cornuta	PI, OP	0	0	0	0	0
	1		Pseudopolydora sp.		0	0	0	0	0
			Scolelepis texana Spio sp.		0	0	0	0	0
			Spionidae (LPIL)		0	0	0	0	0
<u> </u>			Streblospio benedicti	PI, OP	0	1	0	0	0
			Loimia medusa	PS	0	0	0	0	0
	1		Loimia sp.		0	0	0	0	0
			Pista cristata Terebellidae (LPIL)		0 3	0	0	0	0
			Capitella capitata complex Blake	PI, OP	0	0	0	0	0
			Capitella jonesi	PI, OP	0	0	0	0	0
			Capitella sp.	PI, OP	0	0	0	0	0
			Capitellidae (LPIL)		0	0	0	0	0
			Heteromastus filiformis	PI, OP	1	0	0	0	0
	1		Mediomastus ambiseta  Mediomastus californiensis	PS, PI, OP	0	0	0	0	0
	<u> </u>		Mediomastus sp.		1	0	0	0	0
	L		Leitoscoloplos fragilis	PI, OP	0	0	0	0	0
			Leitoscoloplos sp.		0	0	0	0	0
			Orbiniidae (LPIL)		0	0	0	0	0
			Scolopios rubra		0	0	0	0	0
			Sigambra tentaculata Clymenella torquata	PS, EQ	0	0	0	0	0
			organionia torquata	1 ∪, ∟∨	· · · · ·	<u> </u>	J	J	J
	Clitellat	а							
	Clitellat	a	Paranais frici		0	0	0	0	0
	Clitellat	a	Paranais frici Tubificoid Naididae imm. w/o hair setae (LP Tubificoides sp.	PI	0 0 2	0 0 0	0 0 0	0 0 0	0 0 0



	ı	ı	T	ī	1	I	I		T
Phylum	Class	Order	Taxon	Pollution Classification	LW03-SD534-03 LW03-SD534-03-10C	LW03-SD550-02 LW03-SD550-02-10C	LW03-SD550-03 LW03-SD550-03-10C	LW03-SD558-02 LW03-SD558-02-10C	LW03-SD558-03 LW03-SD558-03-10C
				Classification	09/01/2010	09/08/2010	09/08/2010	09/08/2010	09/08/2010
Arthropoda	Malaco	straca							
	maiacc	Amphipe	oda						
			Aoridae (LPIL)  Monocorophium acherusicum		0	0	0	0	0
			Monocorophium insidiosum		0	0	0	0	0
			Monocorophium sp. Listriella clymenellae	PS	0	0	0	0	0
		Cumace		FO	0	Ü	U	U	0
			Cyclaspis varians		0	0	0	0	0
			Leucon americanus Cumacea (LPIL)		0	0	0	0	0
		Decapoo							
			Alpheus sp. Palaemonetes sp.	PS, EQ?	0	0	0	0	0
			Panopeidae (LPIL)		0	0	0	0	0
			Panopeus herbstii Rhithropanopeus harrisii		0	0	0	0	0
			Pinnixa sp.		0	0	0	0	0
			Callinectes sp. Portunidae (LPIL)		0	0	0	0	0
			Decapoda (LPIL)		0	0	0	0	0
		laanada	Decapoda zoea (larva)		0	0	2	0	0
		Isopoda	Edotia triloba		0	0	0	0	0
		Leptostr							
		Mysida	Leptostraca (LPIL)		0	0	0	0	0
		,	Americamysis bigelowi		0	0	0	0	0
			Americamysis sp. Mysidae (LPIL)		0	0	0	0	0
			Neomysis americana		0	0	0	0	0
		Stomat	Mysidacea (LPIL)		0	0	0	0	0
		Stomato	Squilla empusa	PS, EQ	0	0	0	0	0
_	Maxillo								
		Sessilia	Balanus improvisus		0	0	0	0	0
	_		Balanomorpha (LPIL)		0	0	0	0	0
	Entogn	atha	Collembola (LPIL)		0	0	0	0	0
	Unspec	ified							
Mollusca			Crustacea (LPIL)		0	0	0	0	0
Monusou	Gastro	ooda							
			Acteocina canaliculata Acteocina sp.	PS	1 0	0	0	0	0
			Odostomia engonia		0	0	0	0	0
			Turbonilla interrupta		0	0	0	0	0
			Astyris lunata Nassarius vibex		0	0	0	0	0
			Pyrgocythara plicosa		0	0	0	0	0
			Crepidula fornicata Crepidula plana		0	0	0	0	0
			Cerithiopsis greenii		0	0	0	0	0
			Epitonium rupicola Gastropoda (LPIL)		0	0	0	0	0
	Bivalvia	1	Castropoda (Er IE)		Ü	Ü	Ŭ	Ü	Ü
			Anadara transversa	PS, EQ	0	0	0	0	0
			Amygdalum papyrium  Anomia simplex		0	0	0	0	0
			Pododesmus rudis		0	0	0	0	0
			Crassostrea virginica Lyonsia hyalina		0	0	0	0	0
			Mactridae (LPIL)		0	0	0	0	0
			Mulinia lateralis	OP	0	0	0	0	0
			Petricolaria pholadiformis Tagelus plebeius	EQ	0	0	0	0	0
			Tagelus sp.	PS, EQ?	0	0	0	0	0
			Macoma tenta Tellinidae (LPIL)		0	0	0	0	0
			Gemma gemma	OP PO FO	0	0	0	0	0
			Mercenaria mercenaria Pitar sp.	PS, EQ	0	0	0	0	0
			Veneridae (LPIL)		2	0	0	0	0
Phoronida			Bivalvia (LPIL)		0	0	0	0	0
			Phoronida (LPIL)		0	0	0	0	0
Echinoderm	nata		Ophiuroidea (LPIL)		0	0	0	0	0
Chordata			- γεπαιοιασα (LFIL)		U	U	U	<u> </u>	U
			Branchiostoma sp.		0	0	0	0	0
			Total Raw Count		41	1	2	0	0
			Number of Taxa		15	1	1	0	0
			PS = Pollution Sensitive, Weisberg et al, 19	97					
			PI = Polution Indicator, Weisberg et al. 1997	7					
			OP = Opportunistic, Ranasinghe et al. 1994 EQ = Equlibrium, Ranasinghe et al. 1994	1					1
			? = Uncertanty due to taxonomic identificati	on level					
		Metri	cs						<del> </del>
		i victi l	Total Raw Count		41	1	2	0	0
			Total Density (Number per Square Meter	)	589	14	29	0	0
			Number of Taxa Shannon Diversity Index (Base e)		15 2.492	0	0	0	0
			Shannon Diversity Index (Base 2)		3.595	0	0	0	0
			Name of Dominant Taxon		Paraprionospio pinnata	Streblospio benedicti	Decapoda zoea (LPIL)	N/A	N/A
			Percent Contribution of Dominant Taxon		17.07	100.00	100.00	0	0
			Density (No./Square Meter) Dominant Ta	xon	101	14	29	0	0
			Percent Amphipods Percent Bivalves		0.00 4.90	0.00	0.00	0.00	0.00
			Percent Spionid Polychaetes		17.10	100.00	0.00	0.00	0.00
			Percent Mediomastus Polychaetes Percent Deposit Feeders		2.44 24.4	0.00 50	0.00	0.00	0.00
			Sopour reducts	i	47.7	. 50			



				Pollution	LW07-L2-SD401-02	LW07-L2-SD401-03	LW07-H1-SD401-02	LW07-H1-SD401-03
Phylum	Class	Order	Taxon	Classification	LW07-L2-SD401-02-10C-02	LW07-L2-SD401-03-10C-03	LW07-H1-SD401-00-10C-02	LW07-H1-SD401-00-10C-03
				Glassification	09/11/2010	09/11/2010	09/10/2010	09/10/2010
Porifera								
			Porifera (LPIL)		1	0	0	0
Cnidaria								
	Hydrozo							
			Hydrozoa (LPIL)		0	0	0	0
	Anthozo	oa						
			Actiniaria (LPIL)		0	0	0	0
			Actiniaria sp. A		0	0	0	0
	-		Anthozoa (LPIL)		0	0	0	0
Nemertea			Name and a CARILLY		0	0	0	0
			Nemertea (LPIL)		0	0	0	0
			Nemertea sp. A (LPIL) Nemertea sp. B (LPIL)		0	0	0	0
			Nemertea sp. C (LPIL)		0	1	0	0
			Nemertea sp. D (LPIL)		0	0	0	0
Annelida			Nemerica sp. D (LFTL)		0	Ü	U	0
Aimenda	Polycha	eta						
	1 Olycna		Dorvillea (Schistomeringos) rudolphi		0	0	0	0
			Dorvilleidae (LPIL)		0	0	0	0
			Marphysa sanguinea		0	0	0	0
			Glycera americana	PS, EQ	0	0	0	0
			Glycera dibranchiata	. 5, 24	0	0	0	0
			Glycera sp.		0	0	0	0
			Ophioglycera sp.		0	0	0	0
			Glycinde solitaria	PS, OP	0	1	0	0
			Gyptis crypta	-	0	0	0	1
			Hesionidae (LPIL)		0	0	0	0
			Podarke obscura		0	0	0	0
			Laeonereis culveri		0	0	0	0
			Neanthes succinea	PI, OP	0	0	0	0
			Nereididae (LPIL)		0	0	0	0
			Platynereis dumerilii		0	0	0	0
			Drilonereis longa		0	0	0	0
			Diopatra cuprea	PS, EQ	0	0	0	0
			Eteone sp.		0	0	0	0
			Eumida sanguinea		0	0	0	0
			Phyllodoce mucosa		0	0	0	0
			Phyllodocidae (LPIL)		0	0	0	0
			Lepidonotus sp.		0	0	0	0
			Grubeosyllis clavata		0	0	0	0
			Syllidae (LPIL)		0	0	0	0
			Ampharetidae (LPIL)		0	0	0	0
			Spiochaetopterus costarum	PS	0	0	0	0
			Aphelochaeta sp.		0	0	0	0
			Cirratulidae (LPIL)		1	0	0	0
			Tharyx sp.		1	9	0	0
	-		Pectinaria gouldii		0	0	0	0
			Pectinaria sp.		0	0	0	0
			Demonax microphthalmus		0	0	0	0
			Sabellaria vulgaris Sabellidae (LPIL)		0	0	0	0
			Sabellinae (LPIL)		0	0	0	0
			Hydroides dianthus		0	0	0	0
			Hydroides diathus		0	0	0	0
			Hydroides sp.		0	0	0	0
			Serpulidae (LPIL)		0	0	0	0
	<u> </u>		Apoprionospio pygmaea		0	0	0	0
			Dipolydora cauleri		0	0	0	0
			Dipolydora socialis		0	0	0	0
			Marenzelleria viridis	PS	0	0	0	0
			Minuspio sp.	-	0	0	0	0
			Paraprionospio pinnata	PI, OP	3	3	1	2
			Polydora cornuta	PI, OP	0	0	0	1
			Pseudopolydora sp.		0	0	0	0
			Scolelepis texana		0	0	0	0
			Spio sp.		0	0	0	0
			Spionidae (LPIL)		0	0	0	0
			Streblospio benedicti	PI, OP	16	31	13	20
			Loimia medusa	PS	0	0	0	0
			Loimia sp.		0	0	0	0
			Pista cristata		0	0	0	0
			Terebellidae (LPIL)		0	0	0	0
			Capitella capitata complex Blake	PI, OP	0	1	0	3
			Capitella jonesi	PI, OP	0	0	0	0
			Capitella sp.	PI, OP	0	0	0	0
			Capitellidae (LPIL)		0	0	0	0
			Heteromastus filiformis	PI, OP	0	0	0	0
			Mediomastus ambiseta	PS, PI, OP	6	6	4	1
	ļ		Mediomastus californiensis		0	0	0	0
	ļ		Mediomastus sp.		4	12	0	0
			Leitoscoloplos fragilis	PI, OP	0	0	0	0
			Leitoscoloplos sp.		0	0	0	0
			Orbiniidae (LPIL)		0	0	0	0
	<u> </u>		Scoloplos rubra		0	0	0	0
	<u> </u>		Sigambra tentaculata		1	0	0	1
	<b></b>		Clymenella torquata	PS, EQ	0	0	0	0
	Clitellat	a						
	1		Paranais frici		0	0	0	0
				DI.	1	0	Λ	1
			Tubificoid Naididae imm. w/o hair setae (LP Tubificoides sp.	PI	0	0	0	0



					1	1		
Phylum	Class	Order	Taxon	Pollution	LW07-L2-SD401-02 LW07-L2-SD401-02-10C-02	LW07-L2-SD401-03 LW07-L2-SD401-03-10C-03	LW07-H1-SD401-02 LW07-H1-SD401-00-10C-02	LW07-H1-SD401-03 LW07-H1-SD401-00-10C-03
-				Classification	09/11/2010	09/11/2010	09/10/2010	09/10/2010
Arthropoda	Malacos	straca						
		Amphipo						
			Aoridae (LPIL)  Monocorophium acherusicum		0	0	0	0
			Monocorophium insidiosum		0	0	0	0
			Monocorophium sp. Listriella clymenellae	PS	0	0	0	0
		Cumacea		P3	0	0	U	0
			Cyclaspis varians		0	0	0	0
			Leucon americanus Cumacea (LPIL)		0	0	0	0
		Decapod						
			Alpheus sp. Palaemonetes sp.	PS, EQ?	0	0	0	0
			Panopeidae (LPIL)		0	0	0	0
			Panopeus herbstii Rhithropanopeus harrisii		0	0	0	0
			Pinnixa sp.		0	0	0	0
			Callinectes sp. Portunidae (LPIL)		0	0	0	0
			Decapoda (LPIL)		0	0	0	0
		Isopoda	Decapoda zoea (larva)		0	0	0	0
		isopoua	Edotia triloba		0	0	0	0
		Leptostra				0	0	0
		Mysida	Leptostraca (LPIL)		0	0	0	0
			Americamysis bigelowi	_	0	1	0	1
			Americamysis sp. Mysidae (LPIL)		0	0	0	0
			Neomysis americana		0	0	0	0
		Stomato	Mysidacea (LPIL) poda		0	0	0	0
			Squilla empusa	PS, EQ	0	0	0	0
	Maxillo	ooda Sessilia						
		Cooonid	Balanus improvisus		0	0	0	0
	Entogna	atha	Balanomorpha (LPIL)		0	0	0	0
	Entogna	auia	Collembola (LPIL)		0	0	0	0
	Unspec	ified						
Mollusca			Crustacea (LPIL)		0	0	0	0
	Gastrop	oda						
			Acteocina canaliculata Acteocina sp.	PS	0	0	0	0
			Odostomia engonia		0	0	0	0
			Turbonilla interrupta Astyris lunata		0	0	0	0
			Nassarius vibex		0	0	0	0
			Pyrgocythara plicosa Crepidula fornicata		0	0	0	0
			Crepidula plana		0	0	0	0
			Cerithiopsis greenii		0	0	0	0
			Epitonium rupicola Gastropoda (LPIL)		0	0	0	0
	Bivalvia	1 1					_	
			Anadara transversa Amygdalum papyrium	PS, EQ	0	0	0	0
			Anomia simplex		0	0	0	0
			Pododesmus rudis Crassostrea virginica		0	0	0	0
			Lyonsia hyalina		0	0	0	0
			Mactridae (LPIL)	OP	0	0	0	0
			Mulinia lateralis Petricolaria pholadiformis	Or .	0	0	0	0
			Tagelus plebeius	EQ PS, EQ?	0	0	0	0
			Tagelus sp. Macoma tenta	ro, EQ!	0	1	0	0
		_	Tellinidae (LPIL)	0.5	0	0	0	0
			Gemma gemma Mercenaria mercenaria	OP PS, EQ	0	0	0	0
			Pitar sp.		0	1	0	0
			Veneridae (LPIL) Bivalvia (LPIL)		0	0	0	0
Phoronida								-
Echinoderm	l nata		Phoronida (LPIL)		1	1	0	0
			Ophiuroidea (LPIL)		0	0	0	0
Chordata			Branchiostoma sp.		0	0	0	0
			Total Raw Count Number of Taxa		36 11	71 15	19 4	33 11
			TTAINING OF TAXA		11	10	<del>"</del>	11
			PS = Pollution Sensitive, Weisberg et al. 19					
	L		PI = Polution Indicator, Weisberg et al. 1997 OP = Opportunistic, Ranasinghe et al. 1994					<u> </u>
			EQ = Equlibrium, Ranasinghe et al. 1994	an la :!				
			? = Uncertanty due to taxonomic identification	on ievel				
	•	Metri						
			Total Raw Count Total Density (Number per Square Meter)	<u> </u> )	36 517	71 1020	19 273	33 474
			Number of Taxa		11	15	4	11
			Shannon Diversity Index (Base e)		1.807 2.607	1.867	0.898 1.295	1.539 2.22
			Shannon Diversity Index (Base 2)		2.007	2.693	1.233	£.££
			Name of Dominant Taxon		Streblospio benedicti	Streblospio benedicti	Streblospio benedicti	Streblospio benedicti
			Percent Contribution of Dominant Taxon Density (No./Square Meter) Dominant Tax		44.44 230	43.66 445	68.42 187	60.61 287
			Percent Amphipods		0.00	0.00	0.00	0.00
			Percent Bivalves Percent Spionid Polychaetes		2.80 52.80	4.20 47.90	0.00 73.70	3.00 69.70
			Percent Mediomastus Polychaetes		27.78	25.35	21.05	3.03
			Percent Deposit Feeders		62.5	63.38	57.89	50

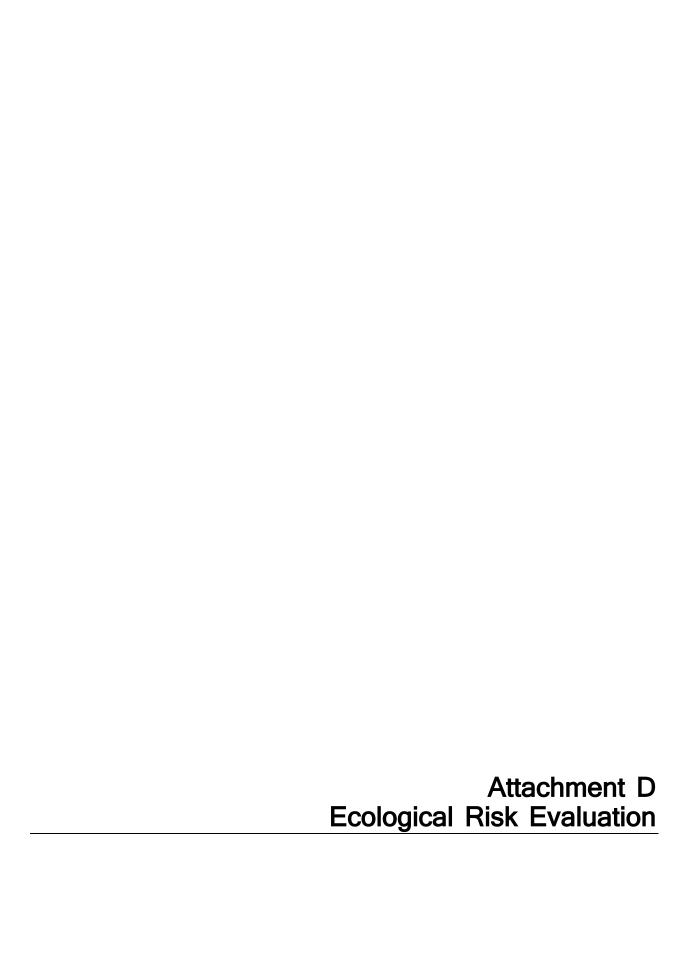


					LW07-SD403-02	LW07-SD403-03
Phylum	Class	Order	Taxon	Pollution Classification	LW07-SD403-00-10C-02	LW07-SD403-00-10C-03
D 16					09/11/2010	09/11/2010
Porifera			Porifera (LPIL)		0	0
Cnidaria			i omora (El 1E)		· ·	<u> </u>
	Hydroz	oa				
	Anthoz	na	Hydrozoa (LPIL)		0	0
	Antiloz	Ja	Actiniaria (LPIL)		0	0
			Actiniaria sp. A		0	0
Nama			Anthozoa (LPIL)		0	0
Nemertea			Nemertea (LPIL)		0	0
			Nemertea sp. A (LPIL)		0	0
			Nemertea sp. B (LPIL)		0	0
			Nemertea sp. C (LPIL) Nemertea sp. D (LPIL)		0	0
Annelida			Nemerica sp. D (LFIL)		0	0
	Polycha	aeta				
			Dorvillea (Schistomeringos) rudolphi		0	0
			Dorvilleidae (LPIL) Marphysa sanguinea		0	0
			Glycera americana	PS, EQ	0	0
			Glycera dibranchiata		0	0
			Glycera sp.		0	0
			Ophioglycera sp. Glycinde solitaria	PS, OP	0	0
			Gyptis crypta	. 5, 51	0	0
			Hesionidae (LPIL)		0	0
			Podarke obscura		0	0
			Laeonereis culveri Neanthes succinea	PI, OP	0	0
			Nereididae (LPIL)	, •	0	0
_			Platynereis dumerilii	_	0	0
			Drilonereis longa	DC TO	0	0
			Diopatra cuprea Eteone sp.	PS, EQ	0	0
			Eumida sanguinea		0	0
			Phyllodoce mucosa		0	0
			Phyllodocidae (LPIL)		0	0
			Lepidonotus sp. Grubeosyllis clavata		0	0
			Syllidae (LPIL)		0	0
			Ampharetidae (LPIL)		0	0
			Spiochaetopterus costarum	PS	0	0
			Aphelochaeta sp. Cirratulidae (LPIL)		0	0
			Tharyx sp.		1	8
			Pectinaria gouldii		0	1
			Pectinaria sp.  Demonax microphthalmus		0	0
			Sabellaria vulgaris		0	0
			Sabellidae (LPIL)		0	0
			Sabellinae (LPIL)		0	0
			Hydroides dianthus Hydroides diathus		0	0
			Hydroides sp.		0	0
			Serpulidae (LPIL)		0	0
			Apoprionospio pygmaea		0	0
			Dipolydora cauleri Dipolydora socialis		0	0
			Marenzelleria viridis	PS	0	0
			Minuspio sp.		0	0
			Paraprionospio pinnata	PI, OP	1	0
			Polydora cornuta Pseudopolydora sp.	PI, OP	0	0
			Scolelepis texana		0	0
			Spio sp.		0	0
			Spionidae (LPIL) Streblospio benedicti	PI, OP	0 4	0 28
			Loimia medusa	PS PS	0	0
			Loimia sp.	-	0	0
			Pista cristata		0	0
			Terebellidae (LPIL)  Capitella capitata complex Blake	PI, OP	0	0
			Capitella jonesi	PI, OP	0	0
			Capitella sp.	PI, OP	0	0
			Capitellidae (LPIL)	B1 05	0	0
			Heteromastus filiformis Mediomastus ambiseta	PI, OP PS, PI, OP	0	0 12
			Mediomastus californiensis	1 0, 1 1, 01	0	0
			Mediomastus sp.		0	3
			Leitoscoloplos fragilis	PI, OP	0	0
			Leitoscoloplos sp. Orbiniidae (LPIL)		0	0
			Scoloplos rubra		0	0
			Sigambra tentaculata		0	0
			Clymenella torquata	PS, EQ	0	0
	Clitellat	a	Paranais frici		0	0
			Tubificoid Naididae imm. w/o hair setae (LP	PI	1	2
		1	Tubificoides sp.		0	0



Phylum	Class	Order	Taxon	Pollution Classification	LW07-SD403-02 LW07-SD403-00-10C-02 09/11/2010	LW07-SD403-03 LW07-SD403-00-10C-03 09/11/2010
Arthropoda						
	Malaco	straca Amphipo	oda			
			Aoridae (LPIL)		0	0
			Monocorophium acherusicum  Monocorophium insidiosum		0	0
			Monocorophium sp.		0	1
			Listriella clymenellae	PS	0	0
		Cumace	a Cyclaspis varians		0	0
			Leucon americanus		0	0
		_	Cumacea (LPIL)		0	0
		Decapoo	<b>a</b> Alpheus sp.	PS, EQ?	0	0
			Palaemonetes sp.	-,	0	0
			Panopeidae (LPIL)		0	0
			Panopeus herbstii Rhithropanopeus harrisii		0	0
			Pinnixa sp.		0	0
			Callinectes sp. Portunidae (LPIL)		0	0
			Decapoda (LPIL)		0	0
			Decapoda zoea (larva)		0	0
		Isopoda	Edotia triloba		0	0
		Leptostr			Ţ.	Ů
		N4 ·	Leptostraca (LPIL)		0	0
		Mysida	Americamysis bigelowi		0	0
			Americamysis sp.		0	0
			Mysidae (LPIL)		0	0
			Neomysis americana Mysidacea (LPIL)		0	0
		Stomato	poda			
	Maxill	noda	Squilla empusa	PS, EQ	0	0
	Maxillo	poda Sessilia				
			Balanus improvisus		0	0
	Entogn	 atha	Balanomorpha (LPIL)		0	0
	ogn		Collembola (LPIL)		0	0
	Unspec	ified				
Mollusca			Crustacea (LPIL)		0	0
Wondsca	Gastrop	ooda				
			Acteocina canaliculata	PS	2	0
			Acteocina sp. Odostomia engonia		0	0
			Turbonilla interrupta		0	0
			Astyris lunata		0	0
			Nassarius vibex Pyrgocythara plicosa		0	0
			Crepidula fornicata		0	0
			Crepidula plana		0	0
			Cerithiopsis greenii Epitonium rupicola		0	0
			Gastropoda (LPIL)		0	0
	Bivalvia	1	Anadara transversa	PS, EQ	0	0
			Amygdalum papyrium	FO, EQ	0	0
			Anomia simplex		0	0
			Pododesmus rudis Crassostrea virginica		0	0
			Lyonsia hyalina		0	0
			Mactridae (LPIL)	OD	1	1
			Mulinia lateralis Petricolaria pholadiformis	OP	0	0
			Tagelus plebeius	EQ	0	0
			Tagelus sp. Macoma tenta	PS, EQ?	0	0
			Tellinidae (LPIL)		0	0
			Gemma gemma	OP DO FO	0	0
			Mercenaria mercenaria Pitar sp.	PS, EQ	0	0
			Veneridae (LPIL)		0	1
Phoronida			Bivalvia (LPIL)		0	0
. noroniua			Phoronida (LPIL)		0	0
Echinoderm	ata		Oakinaidaa (IBU)	<del>_</del>		
Chordata			Ophiuroidea (LPIL)		0	0
			Branchiostoma sp.		0	0
			Total Raw Count		10	E7
			Total Raw Count Number of Taxa		12 8	57 9
			PS = Pollution Sensitive, Weisberg et al, 19 PI = Polution Indicator, Weisberg et al. 1997			
			OP = Opportunistic, Ranasinghe et al. 1994			
			EQ = Equlibrium, Ranasinghe et al. 1994	on lovel		
			? = Uncertanty due to taxonomic identificati	OI 1 10 V C I		
	_	Metri		-		
			Total Raw Count  Total Density (Number per Square Meter)	<u> </u>	12 172	57 819
			Number of Taxa		8	9
			Shannon Diversity Index (Base e)		1.907	1.509
			Shannon Diversity Index (Base 2)		2.752	2.177
			Name of Dominant Taxon		Streblospio benedicti	Streblospio benedicti
			Percent Contribution of Dominant Taxon		33.33	49.12
			Density (No./Square Meter) Dominant Ta. Percent Amphipods	kon	57 0.00	402 1.80
			Percent Bivalves		8.30	3.60
			Percent Spionid Polychaetes		41.70	49.10
			Percent Mediomastus Polychaetes Percent Deposit Feeders		8.33 54.17	26.31 70.18
			· · · · · · · · · · · · · · · · · · ·	·		· · · · · · · · · · · · · · · · · · ·





# **Ecological Risk Evaluation**

# **D.1 Introduction**

This attachment contains an ecological risk evaluation of additional data collected at SWMU 3 in August and September 2010 subsequent to the completion of the Supplemental Remedial Investigation (SRI) report (CH2M HILL, August 2009). These additional data include surface sediment and benthic invertebrates systematically collected throughout the entire site (Figure D-1). The purpose of these additional data was to help evaluate the remedial alternatives to be developed as part of a Feasibility Study (FS) and to provide a baseline for measuring the achievement of the preliminary remedial action objective (RAO) developed for the site.

# D.1.1 Previous Ecological Risk Assessments

A number of ecological risk assessments (ERAs) have been conducted at SWMU 3. The results of these ERAs are summarized in the following subsections.

### D.1.1.1 Site Investigation (SI) and Remedial Investigation (RI)

A draft ERA, through Step 3A of the ERA process, was previously completed for SWMU 3 in 2001 (CH2M HILL, January 2001) and was based upon analytical data collected as part of the 1998 SI. Subsequent to the completion of the 2001 ERA, additional sediment, surface soil, subsurface soil, surface water, and groundwater samples were collected at SWMU 3 as part of the RI (CH2M HILL, August 2005). This additional sampling included a number of sediment, surface water, soil, and groundwater locations not evaluated in the 2001 ERA. The 2005 RI included an ERA that reiterated Steps 1-3A of the ERA process, incorporating these new data, and concluded the following:

- The terrestrial portions of SWMU 3 are highly developed and the resulting low quality of the habitat present (pavement, asphalt, or hard-packed dirt with sparse herbaceous plants) results in a lack of significant exposure pathways to ecological receptors. Abrasive blast material (ABM) is still present on the ground surface in many areas, however, and there is the possibility of continued transport to Little Creek Harbor via wind and surface runoff.
- In surface sediment (0 to 4 inch depth), metals (particularly copper, lead, mercury, nickel, tin, and zinc) and polycyclic aromatic hydrocarbons (PAHs) were identified as chemicals of concern (COCs). Metal concentrations were generally higher in surface sediment samples, although the maximum mercury concentration was higher in subsurface sediment (>4 inch depth) samples. PAH concentrations were generally similar between surface and subsurface sediment samples. The maximum observed depth of ABM was approximately 4 feet below the sediment surface. This suggests some mixing within the top several feet of the sediment column and/or a fairly high rate of sediment deposition. As such, many of the key COCs in surface sediment (i.e., copper, lead, mercury, nickel, tin, zinc, and PAHs) exceeded screening values in subsurface sediment samples.
- In general, COC sediment concentrations were highest in the Near Shore Area and lowest in the Marina (mercury was a notable exception). This pattern is consistent with the known site history and proximity to source areas. Simultaneously Extracted Metals / Acid Volatile Sulfide (SEM/AVS) ratios from surface sediment samples suggest that metal bioavailability is relatively low in the Marina but higher elsewhere. A comparison of surface sediment concentrations to equilibrium partitioning-based sediment values, which incorporate a measure of bioavailability, suggests that potential PAH exposures and risks are higher in the Near Shore Area and low elsewhere.
- The benthic invertebrate community found in Little Creek Harbor in the vicinity of SWMU 3 appears to be
  significantly impaired. During the RI sampling, numerous attempts were made to collect benthic invertebrate
  samples. Only 3 of these attempts resulted in any material being retained in the sieve (No. 30 sieve bucket) and
  only 2 of these 3 samples contained organisms. Two samples (LW03-C-BI203 and LW03-D-BI201) were

collected from areas where ABM was visible. One sample (LW03-BI205) was collected where no ABM was visible. Just 5 total organisms were found in these 3 samples.

- Although copper was identified as a COC in surface water, it was not considered a risk driver based upon the magnitude of its mean hazard quotient (HQ) in filtered samples.
- Except for mercury, there were no exceedances (based upon Lowest Observed Adverse Effect Levels [LOAELs]) for aquatic-based food web exposures (modeled from surface sediment concentrations).
- Groundwater does not appear to be a significant transport route from the site to Little Creek Harbor (that is, it does not produce unacceptable risks to biota) based upon a comparison to surface water screening values (assuming a dilution factor of 10), and consideration of upgradient and background concentrations<sup>1</sup>.
- In summary, the highest site-related risks are associated with metals and PAHs in harbor sediments, particularly in the Near Shore Area.

The following recommendations were made:

- The low quality of the terrestrial habitats present on the site suggests that significant direct exposures for terrestrial receptors are unlikely. However, the presence of ABM residues in terrestrial areas is a potential continuing source of contaminants (via erosion and runoff) to Little Creek Harbor. It is recommended that these residues be removed to eliminate this transport pathway.
- Potential risks from sediment exposures in Little Creek Harbor are high in some areas (such as the Near Shore
  Area). It is therefore recommended that the ERA for SWMU 3 proceed to Step 4 of the ERA process in order to
  better quantify these potential risks.

### D.1.1.2 Supplemental Remedial Investigation (SRI)

The results of the 2005 RI and ERA suggested that the sediments adjacent to SWMU 3 had been impacted as a result of historical site activities related to sandblasting. Because there was a demonstrated impact, it was decided not to proceed with a formal Step 4 ERA work plan to collect biological and toxicological data. Rather, it was decided to focus the subsequent investigation on additional sediment sampling to assess the spatial limits of ABM and to determine if there was a correlation between the metal COCs identified in the ERA and ABM in sediment. The Tier 1 Partnering Team concurred with this approach. Thus, the January/February 2007 sampling to support the SRI had the following objectives:

- Delineate the lateral and vertical extent of ABM in sediment.
- Assess the correlation between ABM, metal concentrations, and potential impacts to ecological receptors in surface sediment.

The 2007 SRI sampling consisted of Ponar/Vibracore sampling along 6 transects (Figure D-2). Surface sediment samples were collected at 60-foot intervals from 0-4 inches using a Ponar dredge and 6-foot sediment cores were collected at 120-foot intervals using a Vibracore along each transect. Sampling activities continued along each transect until ABM was absent from two consecutive sample locations. These transects were intended to fill spatial gaps in the existing sampling (the 2002 RI sampling used identical methods) by extending existing transects and adding new transects. Surface sediment samples were collected at the end of each transect and analyzed for copper, lead, mercury, nickel, tin, zinc (the metal COCs), total organic carbon (TOC), AVS/SEM, and grain size. Ten additional surface sediment samples were collected on these transects from locations with varying ABM content and analyzed for the same parameters (3 samples were also analyzed for tributyltin). Subsurface sediment samples (7 total) were also collected from locations of varying ABM content (correlated with surface locations) and analyzed for the metal COCs. A bathymetric survey of the harbor/channel in the vicinity of SWMU 3 was also conducted to obtain information on the depth profile/bottom contours in the area.

<sup>&</sup>lt;sup>1</sup> An additional evaluation of the groundwater to surface water pathway was conducted in April 2010 at SWMU 3. The results of that evaluation also indicated that groundwater discharging to surface water was not a significant transport route of site-related constituents to Little Creek Harbor.

A revised ecological risk assessment, incorporating the results of the additional sampling described above, was conducted as part of the SRI to assess the potential risks to ecological receptors from exposure to metals and PAHs in Little Creek Harbor sediments located adjacent to SWMU 3. Based upon the results of the ERA included in the RI prepared in August 2005, the Tier 1 Partnering Team (Department of the Navy (Navy), U.S. Environmental Protection Agency (USEPA), and the Virginia Department of Environmental Quality (VDEQ)) agreed there are no unacceptable ecological risks associated with direct or indirect exposure to site surface soil, groundwater, and/or surface water.

COC concentrations detected in surface sediment samples exceeded at least one ecological screening value (TEL, ER-L, PEL, and/or ER-M) in all samples collected. With the exception of zinc at two locations, all samples collected from the transect ends were below the ER-M. The comparison to sediment screening values and the 2002 benthic community survey data both suggested that ABM-related constituents (copper, lead, nickel, tin, and zinc) from the site, as well as mercury and PAHs (which are likely to have other sources besides SWMU 3), had adversely impacted the benthic invertebrate community in the portions of Little Creek Harbor adjacent to SWMU 3 (particularly the Near Shore Area). Bioavailability measures suggested that these constituents may be bioavailable in at least some areas. Because of this, the Navy, in partnership with USEPA, VDEQ, and the Region 3 BTAG, agreed again not to conduct additional biological and toxicological sampling. Rather, it was decided to focus on defining the spatial limits (lateral and vertical) of ABM (which is known to be directly related to SWMU 3 and can thus serve as an unambiguous indicator of site influence) and to determine if there was a correlation between the metal COCs and ABM in surface sediments.

Based upon the results of the ERA included in the SRI, ABM was significantly correlated with the ABM-related metals in surface sediments and is a good indicator of site influence for defining the spatial extent of contamination, and of unacceptable risks when linked to an effects-based toxicity value such as an ER-L or ER-M. The ERA recommended that: (1) PRGs for sediment be developed based upon the extent of ABM, which is significantly correlated with the concentrations of the primary sediment COCs (copper, lead, tin, nickel, and zinc) and is known to be attributable to SWMU 3; (2) mercury and total PAHs be considered during PRG development, but only as secondary factors based upon their lack of correlation with ABM and poor spatial linkage to SWMU 3; and (3) facility-specific background surface sediment concentrations (from July 2007 samples collected in Little Creek Cove; Table D-1) should be considered during PRG development.

In June 2007, the Navy, in partnership with USEPA and VDEQ, agreed to collect background sediment samples from an urban cove area unaffected by sandblasting activities for use in developing remediation goals for SWMU 3. Following a review of historical data, the northern portion of Little Creek Cove was identified as a potentially suitable area for this purpose. Similar to SWMU 3, Little Creek Cove receives storm water runoff from various locations within the facility, including other CERCLA (but non-ABM) sites within the ER Program. As discussed in the SRI, the background sediment samples were similar in terms of physical characteristics to SWMU 3 surface sediment samples but tended to be higher in TOC and composed of a slightly higher percentage of fines (silt/clay). This introduces some uncertainty into their use at SWMU 3 since higher levels of TOC and fines suggest higher levels of deposition in the background area relative to SWMU 3. However, the range of concentrations in the background sediment samples was narrow (low variability), which suggests that these samples represent urban background for this general geographical area. During the development of the sediment PRGs, the use of these urban background sediment data was considered by the partnering team, and the uncertainties associated with their use at SWMU 3 were deemed acceptable and the data were thus deemed suitable for PRG development (see Section D.1.1.3).

#### D.1.1.3 Development of Sediment Preliminary Remediation Goals (PRGs)

Following the completion of the SRI, the Tier 1 Partnering Team agreed to proceed with the establishment of remedial action objectives (RAOs) and the development of sediment PRGs. The preliminary sediment RAO developed for the protection of the environment was as follows:

 Remove ABM-containing sediments and associated metals from the site to the greatest extent practicable to allow a benthic invertebrate community consistent with the urban nature of Little Creek Harbor to become established. Sediment PRGs were developed for the primary COCs (copper, lead, nickel, tin, and zinc) utilizing regression equations relating percent ABM to metals concentrations (as described below), literature-based sediment screening values, and urban background sediment data. Mercury and PAHs are not attributable to a historic CERCLA release, therefore PRGs were not established for these constituents. These constituents will be considered qualitatively when delineating any remediation area.

As part of the SRI, simple linear regression was used to investigate potential correlations between the metal concentrations in surface sediments and the amount of ABM present. All surface sediment samples from 2002 and 2007 for which ABM was quantified were used in the analysis. The 2002 and 2007 surface sediment data indicate a relatively strong (and statistically significant) positive correlation between the ABM content in surface sediment samples and the concentrations of copper, lead, nickel, tin, and zinc (the primary sediment COCs). This correlation was improved by the removal of several outliers (Figure D-2), as follows:

- LW03-C-SD201-00-02C (very high ABM and metals)
- LW03-H-SD307-0001 (very high ABM but low metals)
- LW03-I-SD317-0001 (very high ABM but low metals)

The outliers (H-SD307 and I-SD317) with very high ABM content but low concentrations of metals may possibly represent pure (unused) ABM deposited in these locations. With the 3 outliers removed, the correlation coefficients (r<sup>2</sup> values) were as follows:

- Copper (0.67; p < 0.01)
- Lead (0.73; p < 0.01)</li>
- Nickel (0.45; p < 0.01)</li>
- Tin (0.77; p < 0.01)
- Zinc (0.59; p < 0.01)</li>

The resulting regression equations (Table D-2) were used to calculate associated sediment concentrations using 1 percent ABM (the lowest possible integer; also, percent ABM in sediment was only estimated to the nearest integer during the 2007 SRI sampling and the regression equations were developed as part of the SRI using the 2002 and 2007 data). These values, along with consideration of site-specific background concentrations and literature-based sediment effect levels (ER-L, ER-M, TEL, and PEL), were used to define the sediment PRGs for the five primary COCs (copper, lead, nickel, tin, and zinc). The PRGs for copper, lead, and tin were based upon the regression equations (at 1 percent ABM); none of these PRGs exceeded the ER-M (where available) and all were reasonably comparable to the maximum background concentration (Table D-3). The PRG for nickel was set at the maximum background concentration because maximum background exceeded the regression-derived value and was below the ER-M. For zinc, the ER-M was selected as the PRG because the regression-derived value exceeded all effects-based criteria. It should be noted, however, that the maximum background value for zinc also exceeded the ER-M (Table D-3).

In 2009, the PRGs were used to preliminarily define lateral extent through the calculation of a "Remediation Quotient" or RQ. The RQ was defined as the ratio of the PRG to the sediment concentration. The RQ was calculated for each of the five primary COCs and for each available surface sediment sample. A sample was defined as being "impacted" if the average RQ for the five COCs exceeded one or if the RQ for one or more individual COCs exceeded 1.5. The two secondary COCs (mercury and total PAHs) were qualitatively considered when defining the lateral boundary (using the ER-M values for each of these constituents). The resulting 2009 preliminary impacted sediment lateral boundary is shown on Figure D-1. This boundary met the following criteria: (1) visible ABM is less than 1 percent; (2) the average RQ is less than 1; and (3) no individual RQ exceeds 1.5.

In November 2009, additional sediment sampling was conducted to define the vertical extent. To perform the vertical delineation, the site was divided into a 100-foot-by-100-foot grid system. Sediment cores were collected from within each grid sector located within the lateral boundary and the maximum vertical extent of ABM (greater than 1 percent) was visually identified. A 6-inch vertical sample was then taken from the sediment core just below this ABM-defined depth and analyzed for the metal COCs. If the RQ criteria were met in this sample, no

additional samples at deeper depths were analyzed. As documented in the final, approved SAP (CH2M HILL, December 2009), the vertical extent was defined as the shallowest depth at which the RQs were below established criteria. Following the November 2009 sampling event, the boundary was refined to include all "impacted" grid sectors as previously defined. The preliminary 2009 lateral and vertical boundary of potentially impacted sediment, as defined utilizing data collected as of November 2009, encompasses an area of approximately 13.3 acres and consists of approximately 61,266 cubic yards of sediment (Figure D-1).

### D.1.2 Subsequent Sampling

Following a review of risk reduction alternatives versus overall remedial action cost, the Tier 1 Partnering Team agreed, in March/April 2010, that benthic invertebrate sampling was warranted to further evaluate remedial alternatives and to provide a baseline to measure RAO achievement. In May 2010, the Tier 1 Partnering Team began scoping the benthic invertebrate sampling and analysis plan (SAP).

In August and September 2010, additional surface sediment sampling was conducted to evaluate the current condition of the benthic invertebrate community within Little Creek Harbor adjacent to SWMU 3, based upon the 2009 preliminary impacted sediment lateral boundary defined in Section D.1.1.3. This area was divided into 100 x 100 foot square grids (Figure D-1). Composite surface sediment samples (comprised of three subsamples) were collected within each grid and analyzed for copper, lead, nickel, tin, zinc, total organic carbon (TOC), pH, AVS/SEM, and grain size. Percent ABM was quantitatively measured. Surface water parameter measurements (pH, specific conductance, salinity, turbidity, temperature, dissolved oxygen, and oxidation-reduction potential) were collected from the top, middle, and bottom of the water column at the center point of each grid. Benthic invertebrate samples (composite) were also collected from each grid (see Section D.5.2). The benthic invertebrate taxonomy report is included as Attachment B of the technical memorandum (TM). Per discussions by the Tier 1 Partnering Team, due to the interconnectedness of Little Creek Harbor and Little Creek Cove, the dynamic nature of the system, and Little Creek Cove's receipt of storm water runoff from various locations within the facility, including other CERCLA sites within the ER Program, the sampling of a reference area for benthic invertebrates (in Little Creek Cove) was removed from the SAP.

# D.1.3 Scope and Objectives of the Ecological Risk Evaluation

This evaluation is limited to the sediment of Little Creek Harbor adjacent to SWMU 3 and to the primary COCs identified in the SRI (copper, lead, nickel, tin, and zinc). Only the 2010 data are quantitatively evaluated.

As described in Section D.1.1, there are no unacceptable ecological risks associated with the terrestrial portions of the site due to the lack of significant exposure pathways. Groundwater does not appear to be a significant transport route from the site to Little Creek Harbor for ABM-related constituents. No new surface water data have been collected from the site because no risk drivers were identified for this medium in previous assessments.

As documented in the 2010 SAP (CH2M HILL, October 2010), the primary objective of the SWMU 3 investigation is to evaluate the current condition of the benthic invertebrate community within the 2009 preliminary impacted sediment lateral boundary to support the evaluation of remedial alternatives in the FS and to assist in measuring remedy success against the RAO. The environmental questions to be answered are as follows:

- What is the composition and condition of the existing benthic invertebrate community at SWMU 3 and how does it vary spatially throughout the site?
- Is the composition and condition of the existing benthic invertebrate community at SWMU 3 correlated with the concentration of the COCs and/or the presence of ABM?

Due to scheduled maintenance of the Dry Dock in 2012, an Engineering Evaluation and Cost Analysis (EE/CA) was to be prepared for completion of a non-time-critical removal action (NTCRA) in the northern portion of the site and the area surrounding the Dry Dock. Therefore, a third environmental question was included in the SAP as follows:

• What is the site condition following completion of the NTCRA, and what action is required at SWMU 3 to meet the RAO and what is the spatial extent of such an action?

Following additional Team discussion, it was agreed the site would be addressed as a whole under the completion of a FS, Proposed Plan, and Record of Decision; therefore, a NTCRA will not be completed. Thus, the third environmental question from the SAP was modified as follows:

 What action is required at SWMU 3 to meet the preliminary RAO and what is the spatial extent of such an action?

The focus of this ecological risk evaluation is to address the project objective and to answer the three environmental questions developed as part of the 2010 SAP (modified as described above).

### D.2 Problem Formulation

Problem formulation establishes the goals, scope, and focus of the evaluation. As part of problem formulation, the environmental setting of SWMU 3 is characterized in terms of the habitats and biota known or likely to be present. The types and concentrations of chemicals present in ecologically relevant media (in this case sediment) are also described. A conceptual model is developed that describes source areas, transport pathways and exposure media, exposure pathways and routes, and receptors. Assessment endpoints, measurement endpoints, and risk hypotheses are developed to evaluate those receptors for which critical exposure pathways exist.

### D.2.1 Environmental Setting

SWMU 3 is located in a developed area on the western side of Little Creek Harbor (Figure D-3). This area was used for sandblasting boats from 1962 to 1984, after which anchors and anchor chains were sandblasted at the site. Up until 1995, sandblasting took place on a concrete pad located on the western side of Building 1263 (Figure D-4). The sandblast material was periodically removed from the site for disposal following EP toxicity testing; results indicated that the material was non-hazardous. Paint chips and sandblast grit cover the unpaved ground south of the pad to the water's edge and were also observed on the near shore bottom of Little Creek Harbor. In 1982, a fence was installed around the sandblasting area to limit access to the site and to prevent windblown sandblast materials from migrating outside of the fenced area. This fence is generally closed and locked outside working hours. Photographs taken in 1993 indicate that the area within the fence had been covered with asphalt except for a very small strip of land to the east of the sandblasting pit and a small area in the northeastern corner of the fenced compound. Small unpaved areas also occur northwest, north, and south of the fenced area. Little or no vegetation covers these unpaved areas.

In 1995, the initial sandblasting pad was taken out of service and a new sandblasting area was constructed in the northwestern corner of the compound. This new area consisted of a concrete pad surrounded by a 4- to 5-foothigh concrete wall. The use of this new area was discontinued in 1996 when all sandblasting activities were moved to an indoor facility near SWMU 7. However, some sandblasting and boat painting does occur within the confined space of the floating dry dock located at Pier 10.

Historical releases from SWMU 3 likely occurred when sandblasting residue was lying directly on the ground surface. Prior to 1993, runoff from sandblasting operations occurred as sheet flow to Little Creek Harbor. In about 1993, a catch basin with a regulated outfall was constructed at the site. Surface water drainage from the sandblasting area constructed in 1995 flows to this catch basin and empties into Little Creek Harbor at the outfall located under Pier 10 (Outfall 008) about 35 feet from its easternmost edge (Figure D-4). Runoff from other areas of SWMU 3 flows directly (as sheet flow) into Little Creek Harbor.

NAB Little Creek maneuvers are practiced in the Pier 10 area of Little Creek Harbor and a recreational marina for use by military dependents and former active duty members is located just south of SWMU 3 (Figure D-4). The marina contains a fueling station and fish cleaning station south of the boat slips. As a precautionary measure, at the request of NAB Little Creek environmental personnel, a picnic area in the southwestern portion of SWMU 3 was covered with three inches of topsoil and sod in April 1999 to minimize any potential exposure to the visible ABM present.

In 1999, 2 to 5 feet of sediments were removed from around Pier 10. Some minor sediment removal also occurred in the vicinity of the floating dry dock at Pier 10 just prior to the start of the RI sampling (Fall 2002). Little Creek Channel (not including the Near Shore sediments directly adjacent to SWMU 3) has been regularly dredged since 1928. It was last known to be dredged in 2001. The channel depth is now approximately 27 feet below mean low water (mlw). In 1965, Piers 1–8 (located south of SWMU 3) were dredged to 18 feet below mlw, plus a 2-foot overdepth.

The salinity of Little Creek Harbor in the vicinity of SWMU 3 is generally between 15 and 25 parts per thousand (ppt) near the surface and the in middle of the water column (Tables D-4 and D-5). At the bottom of the water column, the salinity tends to be slightly higher, generally between about 18 and 26 ppt (Tables D-4 and D-5).

The total organic carbon (TOC) concentration in surface sediments is highly variable, ranging from 0.01 to 6.52 percent (Tables D-6 and D-7). The sediment pH is typically about 8.0. The percent fines (silt and clay) is also highly variable, ranging from 1.87 to 97.5 percent (Tables D-6 and D-7). The depth to the redox boundary is typically only a few millimeters. The SEM/AVS ratio, a measure of metal bioavailability, rarely exceeded one (indicating low bioavailability) in the August/September 2010 surface sediment samples (2 of 60 samples) and in the February 2007 surface sediment samples (1 of 7), but exceeded one in 50 percent (3 of 6) of the surface sediment samples collected in October 2002 (Tables D-6 and D-7).

Visible ABM was observed in surface (0 to 4 inch) sediment samples collected from Near Shore areas of SWMU 3 during the SI. During the sampling conducted as part of the RI and SRI, ABM was observed in nearly all surface sediment samples at quantities ranging from less than 1 percent to 97 percent. ABM was also observed in most RI and SRI sediment cores down to a maximum depth of 88 inches (Table D-6). Petroleum material and/or petroleum odors were also prevalent in some sediment cores, generally at depths of 30 to 60 inches (Table D-6). In 2010 surface sediment samples, ABM was present in almost all (57 of 58; percent ABM was not measured at two locations) samples at concentrations ranging from trace to 50 percent. ABM exceeded 1 percent in 24 of 58 samples (Table D-7).

As documented in the 2005 RI report, no state or federally listed threatened or endangered species are known to occur on or near SWMU 3. Various species of estuarine fish are likely to use the area near SWMU 3 at least periodically.

The benthic invertebrate community found in Little Creek Harbor in the vicinity of SWMU 3 appears to be significantly impaired. During the 2002 RI sampling, numerous attempts were made to collect benthic invertebrate samples. Only 3 of these attempts resulted in any material being retained in the sieve (No. 30 sieve bucket) and only 2 of these 3 samples contained organisms. Two samples (LW03-C-BI203 and LW03-D-BI201) were collected from areas where ABM was visible. One sample (LW03-BI205) was collected where no ABM was visible. Just 5 organisms were found in these 3 samples (Table D-8).

During the 2010 sampling, organism counts were highly variable but most locations had low numbers of organisms. Of the 60 cells sampled, 14 (23.3%) had zero organisms and 33 (55%) had less than 10 total organisms (Table D-9). The dominant organisms present are generally characterized as tolerant of pollutants and low dissolved oxygen, and opportunistic; are indicative of organic enrichment and depositional environments; and are surface dwellers, inhabiting the sediment/water interface (deeper-dwelling organisms were generally low to absent, probably due to anoxic conditions at depths more than a few centimeters below the sediment surface) (Table D-9). The available benthic invertebrate community data are evaluated in detail as part of the risk characterization (Section D.5.2).

# D.2.2 Analytical Data Used in the Evaluation

Only the surface sediment samples collected in August/September 2010 were used in this evaluation, which were collected from each of the 60 grids within the 2009 preliminary impacted sediment lateral boundary. Sampling locations are shown on **Figure D-1**. The raw analytical data are provided in **Attachment A** of the TM. The number and location of the 2010 samples were scoped jointly by the Navy, USEPA, VDEQ, and the Region 3 BTAG as part of the SAP process.

### D.2.3 Conceptual Model

The conceptual model relates potentially exposed receptor populations with potential source areas based upon physical site characteristics and complete exposure pathways. Important components of the conceptual model are the identification of potential source areas, transport pathways, exposure media, exposure pathways and routes, and receptors. Actual or potential exposures of ecological receptors associated with a site are determined by identifying the most likely, and most important, mechanisms and pathways of contaminant release and transport. A complete exposure pathway has three components: (1) a source of chemicals that results in a release to the environment; (2) a pathway and mechanism of chemical transport through an environmental medium; and (3) an exposure or contact point for an ecological receptor. Figure D-5 illustrates a diagrammatic conceptual model for SWMU 3. Key components of this conceptual model are discussed in the following subsections.

#### D.2.3.1 Source Areas

The site-related potential source areas at SWMU 3 include the areas in which historic sandblasting-related activities have occurred.

### D.2.3.2 Transport Pathways and Exposure Media

A transport pathway describes the mechanisms whereby chemicals may be transported from a source of contamination to ecologically relevant media (such as sediment). These transport pathways are shown on Figure D-5.

As discussed in Section D.1.3, the exposure medium for ecological receptors that is relevant to this ERA is limited to sediment. Site-related chemicals in soils may have been transported via direct and/or indirect (via the storm sewer system) surface runoff to Little Creek Harbor. ABM residue may also have been transported via wind to Little Creek Harbor. Site-related chemicals in surface sediment may be taken up and accumulated in the tissue of biota, and thus be transported to upper trophic level receptors via food webs. Based upon the 2005 RI and 2009 SRI, the food web pathway did not result in any unacceptable risks and is not evaluated further.

### D.2.3.3 Exposure Pathways and Routes

An exposure pathway links a source of contamination with one or more receptors through exposure via one or more media and exposure routes. Exposure, and thus potential risk, can only occur if complete exposure pathways exist. Figure D-5 shows the complete exposure pathways to ecological receptors at SWMU 3. The key complete exposure pathway is to the benthic invertebrate community utilizing Little Creek Harbor in the vicinity of SWMU 3 (direct exposure to surface sediments).

An exposure route describes the specific mechanism(s) by which a receptor is exposed to a chemical present in an environmental medium. The most common exposure routes are dermal contact, direct uptake, ingestion, and inhalation. The key exposure route for this evaluation is direct contact with surface sediments (for benthic invertebrates).

#### D.2.3.4 Receptors

The key receptors for this evaluation are benthic invertebrates. Various species of estuarine fish may use Little Creek Harbor in the vicinity of SWMU 3, at least periodically, but the duration and magnitude of potential exposures are expected to be limited. Based upon habitat and salinity, amphibians and reptiles are not expected to be significant receptors at this site. Similarly, exposures for upper trophic level receptors (birds and mammals) are not expected to be significant at the site due to the limited habitat along the shoreline (rip-rap or bulkhead), the depth of the water in the Offshore Area, and the results of the food web modeling conducted as part of the 2005 RI (and revisited as part of the 2009 SRI).

### D.2.3.5 Endpoints and Risk Hypotheses

The conclusion of the problem formulation includes the selection of ecological endpoints and risk hypotheses, which are based upon the conceptual model. Two types of endpoints, assessment endpoints and measurement endpoints, are defined as part of the ERA process (USEPA, 1997). An assessment endpoint is an explicit expression of the environmental component or value that is to be protected. A measurement endpoint is a measurable ecological characteristic related to the component or value chosen as the assessment endpoint. The

considerations for selecting assessment and measurement endpoints are summarized in USEPA's *Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments* (USEPA, 1997). Risk hypotheses are testable hypotheses about the relationship among the assessment endpoints and their predicted responses when exposed to contaminants.

Endpoints define ecological attributes to be protected (assessment endpoints) and measurable characteristics of those attributes (measurement endpoints) that can be used to gauge the degree of impact that has or may occur. Assessment endpoints most often relate to attributes of biological populations or communities, and are intended to focus the risk assessment on particular components of the ecosystem that could be adversely affected by chemicals attributable to a site (USEPA, 1997). Assessment endpoints contain an entity (e.g., benthic invertebrate population) and an attribute of that entity (e.g., survival rate). Individual assessment endpoints usually encompass a group of species or populations (the receptor) with some common characteristic, such as specific exposure route or contaminant sensitivity, with the receptor then used to represent the assessment endpoint in the risk evaluation.

Assessment and measurement endpoints may involve ecological components from any level of biological organization, from individual organisms to the ecosystem itself. Effects on individual organisms are important for some receptors, such as rare and endangered species; population- and community-level effects are typically more relevant to ecosystems. Population- and community-level effects are usually difficult to evaluate directly without long-term and extensive study. However, measurement endpoint evaluations at the individual level, such as an evaluation of the effects of chemical exposure on reproduction, can be used to predict effects on an assessment endpoint at the population or community level. In addition, use of criteria values designed to protect the majority of the components of a community (e.g., Ambient Water Quality Criteria [AWQC] for the Protection of Aquatic Life) can be useful in evaluating potential community- and/or population-level effects.

**Table D-10** shows the assessment endpoints, risk hypotheses, and measurement endpoints used in the evaluation. **Table D-10** also shows the receptors associated with each endpoint.

# **D.3 Exposure Assessment**

Concentrations of the metal COCs in the 2010 sediment samples are shown in **Table D-11**. These data constitute the exposure point concentrations for this evaluation.

# D.3.1 Data Groupings

The following spatial groupings were utilized (Figure D-1):

- Near Shore Area samples collected in Little Creek Harbor along the immediate shoreline of SWMU 3 (Table D-11).
- Dry Dock samples collected from grids in the vicinity of the floating dry dock (Table D-11).
- Offshore Area samples collected in Little Creek Harbor in areas away from the immediate shoreline of SWMU 3 (Table D-11).
- Marina samples collected in and around the marina located in the southern portion of SWMU 3 (Table D-11).

These spatial groupings were used to better evaluate potential risks in different areas of Little Creek Harbor adjacent to the site where potential exposures could vary due to differences in the magnitude of chemical concentrations. In addition, these groupings assist in the evaluation of the spatial distribution of potential risks in Little Creek Harbor relative to the site.

# **D.4 Effects Assessment**

The effects assessment defines the methods and data used to define an adverse ecological effect. Effects data, which are reflected in the measurement endpoints, include:

- **Site-specific PRGs** Analytical sediment data are compared to the sediment PRGs summarized in **Table D-3**. RQs are also calculated and compared with the decision criteria summarized in Section D.1.1.3.
- Benthic Invertebrate Surveys Results of the benthic invertebrate surveys that were conducted in August/September 2010.
- **Bioavailability Measures** Additional data were collected to help evaluate the chemical-specific bioavailability for direct exposures to surface sediment (AVS/SEM, TOC, and grain size).

# D.5 Risk Characterization

Risk characterization uses the information from the three previous parts of the ecological risk evaluation (problem formulation, exposure assessment, and effects assessment) to evaluate potential risks/impacts to ecological receptors.

# D.5.1 Comparison with Sediment PRGs

The surface sediment evaluation was conducted using the data groupings discussed in Section D.3.1 and is summarized in Table D-11. A sample meets the decision criteria relating to the sediment PRGs if: (1) visible ABM is less than or equal to 1 percent; (2) the average RQ is less than 1; and (3) no individual RQ exceeds 1.5 (see Section D.1.1.3). For all areas combined, ABM exceeded 1 percent in 24 of 58 samples (two samples did not have data for this parameter), one or both RQ criteria were exceeded in 24 of 60 samples, and both the ABM and RQ criteria were exceeded in 18 of 60 samples. However, the SEM/AVS ratio, a measure of metal bioavailability, exceeded one in only 2 of 60 samples, and only one of these two samples (SD-516, in the Near Shore Area) also failed the ABM and/or the RQ criteria (although the SEM/AVS ratio was only slightly over one [1.10] at SD-516). However, 14 benthic invertebrate taxa were observed at SD-516, with a total density of 560 organisms/m². Both of these values were well above the median value across all 60 grids. Pollution sensitive taxa were also observed at SD-516 (6 total pollution sensitive organisms, among the highest totals observed at the site), comprising about 10 percent of the community. The nearby Near Shore sampling grids SD-523 and SD529, which also failed both the ABM and RQ criteria but had SEM/AVS ratios below one, had similarly high number of taxa and densities, and also contained pollution sensitive taxa (Table D-9).

None of the 3 samples in the Dry Dock area exceeded either the ABM or the RQ criteria. The average percent ABM was 0.67 and the mean average RQ was 0.76. The lack of exceedances is likely the result of dredging that has occurred in this area in 1999 and 2002. For the Marina, 7 of 11 samples failed the ABM criterion, 5 of 11 samples failed the RQ criteria, and 5 of 11 samples failed both. The average percent ABM was 2.44 and the mean average RQ was 1.10. For the Near Shore Area, 11 of 19 samples failed the ABM criterion, 10 of 19 samples failed the RQ criteria, and 9 of 19 samples failed both. The average percent ABM was 12.3 and the mean average RQ was 3.19. For the Offshore Area, 6 of 25 samples failed the ABM criterion, 9 of 27 samples failed the RQ criteria, and 4 of 27 samples failed both. The average percent ABM was 0.87 and the mean average RQ was 0.98.

# D.5.2 Benthic Invertebrate Surveys

Benthic invertebrate surveys were conducted in 2010 at all 60 grids comprising the project area. 2010 samples were composites of three samples collected around the center point of the sampling grid using a petite Ponar dredge (36 in² sampling area); total sampled area was 108 in² (3 x 36). Replicate samples (three per sampling grid) were collected from 3 of the 60 sampling grids (534, 550, and 558; **Figure D-1**). Each replicate sample consisted of three grabs collected from the <u>same</u> location within the sampling grid (rather than at three different locations within the same sampling grid) and composited. Since each of the three samples (each composed of three grabs from the same location) were collected from within the same sampling grid, but in different areas of the grid, they are replicate samples for that sampling grid.

During the 2010 sampling, organism counts were highly variable but most locations had low numbers of organisms. Of the 60 sampling grids, 14 (23.3%) had zero organisms (for each of the three grids [534, 550, and 558] that had replicate samples, at least one replicate had no organisms; however, the average of the three replicates was used to represent the grid, so none of these grids was considered to have no organisms) and 33

(55%) had less than 10 total organisms (**Table D-9**). Total densities ranged from 0 to 2,414 organisms per square meter and number of taxa ranged from 0 to 35. The dominant organisms present at the site are generally characterized as tolerant of pollutants and low dissolved oxygen, and opportunistic; are indicative of organic enrichment and depositional environments; and are surface dwellers, inhabiting the sediment/water interface (deeper-dwelling organisms were generally low to absent, probably due to anoxic conditions at depths more than a few centimeters below the sediment surface). The benthic invertebrate community at the site was dominated by polychaetes, most of which are pollution tolerant. Polychaetes accounted for about 52 percent of the total benthic invertebrate community. Bivalves, the next most numerous group, comprised about 21 percent of the total community. Pollution sensitive organisms were detected in some samples, but were relatively uncommon. About half (31 of 60) of the sampling grids (including the 14 grids with no total organisms) had no pollution sensitive organisms and only 6 sampling grids had more than 5 total pollution sensitive organisms (5 of these 6 sampling grids were in the Near Shore Area). The results from the 2010 replicate samples (**Table D-12**) indicate some spatial variability, particularly in sample 534, since the coefficients of variability were, with few exceptions, greater than one (which indicates that the standard deviation, a measure of variability, is greater than the mean value) for the metrics evaluated (see the following section).

#### D.5.2.1 Correlation Between Benthic Metrics and Physical/Chemical Parameters

In Section D.1.3, the following environmental question was outlined:

• Is the composition and condition of the existing benthic invertebrate community at SWMU 3 correlated with the concentration of the COCs and/or the presence of ABM?

In this section, a statistical evaluation of the 2010 benthic invertebrate data is conducted in order to answer this question. During the December 2010 Partnering team meeting, the Navy, USEPA, and VDEQ agreed to include the following benthic invertebrate metrics in the statistical evaluation:

- Number of taxa (taxa richness)
- Total density
- Percent contribution of dominant taxon
- Density of dominant taxon
- Percent Spionid polychaetes
- Percent Mediomastus and Capitella polychaetes
- Density of pollution tolerant organisms
- Percent pollution tolerant organisms
- Density of pollution sensitive organisms
- Percent pollution sensitive organisms

However, because of the relatively large number of sampling grids with zero organisms (14 of 60 or 23.3 percent), only number of taxa and total density were used in the statistical evaluation. Zero counts always yield meaningful values for these metrics, which is not always true for the other eight metrics. A zero value for number of taxa and total density means that no organisms were present, a meaningful result. However, if a sample contains no organisms (and is therefore presumed to be impacted), it has an undefined value for any of the parameters based upon a percentage (since you are dividing by zero). The sample would also have a value of zero for density of the dominant taxon and density of pollution tolerant organisms; low values for these two parameter suggest a healthy, not an impacted, community.

As part of the statistical evaluation, total density and number of taxa are examined for correlations with the physical and chemical parameters of the surface sediments and the bottom of the water column. These parameters include, for surface sediment, the concentrations of the COCs, grain size, TOC, pH, SEM/AVS ratio, and percent ABM, and, for the water column (measured just above the sediment surface), dissolved oxygen, ORP, salinity, temperature, specific conductivity, turbidity, and pH. Average RQ and water depth were also included as variables.

As agreed to at the December 2010 Partnering Team meeting, the values for the following metrics are reported but not included in the statistical evaluation:

- Diversity (Shannon-Weiner Index)
- Percent amphipods
- Percent bivalves
- Percent deposit feeders

These four metrics were included on the preliminary list of metrics in the SAP but were proposed for deletion at the December 2010 Partnering Team meeting, because they were not useful metrics based on a review of the benthic invertebrate data. At the December 2010 Partnering Team meeting, when the metrics were finalized, BTAG requested that these four metrics be reported (not deleted); however, the Tier I Partnering Team agreed that they need not be included in the statistical analysis. The values for these metrics, as well as for the 10 primary metrics, are shown in Table D-9. For the three samples with replicates, the mean value was used in the statistical evaluation to represent the sample. The "pollution classification" for each taxa is also listed in Table D-9, if available. Since not all taxa had classifications, the sum of the percent pollution sensitive organisms and the percent pollution tolerant organisms do not always add up to 100. For example, SD501 is comprised of 21.7 percent pollution tolerant organisms and 8.33 percent pollution sensitive organisms (the remainder had no available classifications). Values for average RQ are shown in Table D-11.

Both statistical and observational methods were used to identify chemical and/or physical parameters that were potentially associated (correlated) with differences in the values of the benthic invertebrate metrics. Observational methods included examination of scatterplots for each benthic metric with each physical and chemical parameter. Correlations (linear) were investigated statistically using both parametric (Pearson productmoment) and non-parametric (Spearman rank) correlation coefficients. Pearson correlation coefficients (which use the actual data values) are more influenced by outliers, unequal variances, non-normality, and nonlinearities than are Spearman-rank correlation coefficients (which use ranks and not the actual data values themselves). Because the data were rarely normally distributed, an assumption of the Pearson statistic (the Spearman statistic does not have any distribution assumptions), the Spearman coefficients were given more weight if the results of the two methods differed. The significance level ( $\alpha$ ) was set at 0.05 for both tests.

**Figure D-6** shows scatterplots of each benthic metric with each physical and chemical parameter. Correlation coefficients are summarized in **Table D-13**. **Table D-14** lists only the significant correlations. Number of taxa had 18 significant correlations (out of 25 possibilities) with the physical and chemical parameters based upon the Spearman test. These correlations were relatively weak, with very few R<sup>2</sup> values (these values indicate the proportion of the variability explained, a measure of the strength of the relationship) above 0.50. Total density had 19 significant correlations (out of 25 possibilities) with the physical and chemical parameters based upon the Spearman test. These correlations were relatively weak, with very few R<sup>2</sup> values above 0.50. Silt/clay had the strongest correlations (maximum R<sup>2</sup> of 0.620) based upon the Spearman test (several other grain size fractions were also significantly correlated with the benthic metrics but not as strongly as silt/clay), followed by water depth (maximum R<sup>2</sup> of 0.562), bottom dissolved oxygen (DO) (maximum R<sup>2</sup> of 0.342), and TOC (maximum R<sup>2</sup> of 0.290) (**Table D-14**). The metal COCs were not significantly correlated with either benthic metric based upon the Spearman test (copper, nickel, and zinc), or were only weakly correlated (tin and zinc). Average RQ was also not significantly correlated with either benthic metric.

Based upon the results of the individual correlations, multiple regression analysis was conducted for number of taxa and total density. These two benthic metrics were significant positively correlated with one another (Table D-15), with a R<sup>2</sup> value of 0.956.

The physical and chemical parameters (silt/clay, total organic carbon, water depth, and bottom dissolved oxygen) that had the highest individual correlations with the benthic invertebrate metrics (Figures D-7 through D-14) were included in the multiple regression analysis. Average RQ and percent ABM were also included because they represented the PRG decision metrics; average RQ was not significantly correlated with either benthic metric based upon the Spearman test and percent ABM was only weakly (but significantly) correlated (maximum R<sup>2</sup> of

0.180) (Figures D-15 through D-18). Table D-15 shows the correlations among these six physical and chemical parameters. Based upon the Spearman test, average RQ was only significantly correlated with percent ABM (positive). Percent ABM was significantly correlated with average RQ (positive), silt/clay (negative), and water depth (negative). Silt/clay was significantly correlated with percent ABM (negative), TOC (positive), bottom DO (negative), and water depth (positive). TOC was significantly correlated with silt/clay (positive), bottom DO (negative), and water depth (negative). Bottom DO was significantly correlated with percent ABM (negative), silt/clay (positive), TOC (negative). Water depth was significantly correlated with percent ABM (negative), silt/clay (positive), TOC (positive), and bottom DO (negative). Although statistically significant, most of these correlations were relatively weak, with very few R² values above 0.50. This indicates that each of these parameters did not co-vary strongly with any other parameter. Thus, there are no redundancies among this set of six parameters for the purposes of multiple regression analysis (pairs of highly correlated variables would be redundant in a multiple regression model if both were included).

The results of the multiple regression are summarized in **Table D-16**. Four variations of multiple regression were employed, as follows:

- Stepwise the stepwise method removes and adds variables (physical/chemical parameters) to the model in a series of steps to identify those parameters that are most useful in predicting the response variable (benthic metric). Variables accepted in earlier steps can be removed in later steps if they are no longer significant.
- Forward the forward method adds variables to the model one at a time and retains them if they are useful (significant). Unlike the stepwise method, variables cannot be removed once they are added to the model.
- Backward the backward method begins with all variables included in the model and removes them one at a time until all remaining variables are significant. Once removed, a variable cannot re-enter the model.
- None this method employs no variable selection mechanism. All variables are included (forced into the model) regardless of their usefulness (significance).

The significance level ( $\alpha$ ) was set at 0.05 for all tests.

For number of taxa, silt/clay, water depth, and average RQ were the variables that were most consistently important to the models. The resulting model containing these three variables was a relatively good predictor, with an adjusted R² value of 0.610 (the adjusted R² accounts for having multiple variables in the model [including the intercept term] whereas R² does not). Water depth, which was correlated with bottom DO (Figure D-19), was selected preferentially by the model although bottom DO also entered the forward model (but was not significant in the final model). Of interest, average RQ was consistently an important variable in the model even though its individual correlation to number of taxa was not significant. Further, the sign of its contribution to the model was positive, meaning that higher values for number of taxa were associated with higher average RQ values.

For total density, silt/clay and average RQ were the variables most consistently important to the models. The resulting model containing these two variables, however, was a poor predictor, with an adjusted R<sup>2</sup> value of 0.422. Bottom DO also entered the forward model (but was not significant in the final model). Of interest, average RQ was consistently an important variable in the model even though its individual correlation to total density was not significant. Further, the sign of its contribution to the model was positive, meaning that higher values for total density were associated with <u>higher</u> average RQ values.

In summary, silt/clay and average RQ were the best predictors of the benthic invertebrate metrics, along with water depth and, to a lesser extent, bottom DO. However, average RQ was positively correlated with the metrics. Silt/clay was negatively correlated with the metrics, suggesting that depositional areas with high silt/clay content (and likely organic loading) were detrimental to the benthic invertebrate community. Water depth was also negatively correlated with the metrics while bottom DO was positively correlated. Thus, shallower waters with less deposition had higher levels of DO, allowing a relatively "healthier" benthic invertebrate community to occur, as measured by the benthic metrics evaluated. Conversely, these areas were generally along the site shoreline and thus tended to have higher concentrations of metals and ABM, which is why these variables were positively correlated with the benthic metrics. Based upon these data, the physical factors (such as bottom DO) had more

effect on the benthic invertebrate community than the chemical factors related to the site. This may be due to limited metal bioavailability as the SEM/AVS ratios were almost always less than one. Thus, low DO at the bottom of the water column (just above the sediment surface) appears to have a major impact on the benthic community. This condition is not uncommon in urban harbors with high organic loading in the Chesapeake Bay system, particularly in summer (July and August) when the amount of oxygen the water column can hold, which decreases as water temperature increases, is at a minimum. Freshwater inflow carrying nutrients (primarily nitrogen and phosphorus) from agricultural and urban runoff, wastewater systems, and atmospheric deposition stimulates the growth of phytoplankton/algae, which later die and sink to the bottom of the water column, where their decomposition by bacteria consumes much of the oxygen from the bottom of the water column (which is why TOC is typically negatively correlated with bottom dissolved oxygen concentrations). This process can be exasperated in deeper waters as water column stratification can develop based upon differences in water temperature and salinity (increases in salinity also reduce the amount of oxygen the water can hold) with depth, isolating the deeper waters from the more oxygenated (through diffusion with the air, wind action, and wave/tidal action) surface layers. Based upon Figures D-7 and D-8, a bottom DO of 4 mg/L is an approximate "threshold", at the water temperature and salinity present at the time of sampling, below which impacts to the benthic invertebrate community appear to be most acute at this site. However, since water temperature, and to a lesser extent salinity, vary temporally, this "threshold" cannot be extrapolated to other periods of the year; however, it is a useful qualitative measure for the spatial evaluation of the 2010 data set.

### D.5.2.2 Spatial Analysis

In Section D.1.3, the following environmental question was outlined:

 What is the composition and condition of the existing benthic invertebrate community at SWMU 3 and how does it vary spatially throughout the site?

In this section, a statistical evaluation of the 2010 benthic invertebrate data is conducted in order to answer this question. The composition and condition of the benthic invertebrate community was described at the beginning of Section D.5.2.

For each benthic metric, an analysis of variance (ANOVA) was conducted to determine if any differences existed among 2010 area (Dry Dock, Near Shore, Marina, and Offshore) means. The ANOVA is a parametric test, and thus assumes normality and homogeneity of variances, assumptions that were often not met. Thus, the non-parametric Kruskal-Wallis ANOVA on ranks was also conducted on the medians of the response variables (benthic metrics). This non-parametric method offers a more consistent view of the data since all cases can be treated the same regardless if they support an assumption of normality or not. If the ANOVA was significant (i.e., differences in mean or median values among the areas were greater than would be expected by chance), then pair-wise comparisons were conducted to isolate the area or areas that differed from the others. Tukey's procedure was the multiple comparison procedure used, both for the ANOVA and (using ranks) for the Kruskal-Wallis ANOVA. If the ANOVA was not significant, no pair-wise comparisons were made, as it was concluded that there were no significant differences among the areas. The significance level  $(\alpha)$  was set at 0.05 for all tests.

Table D-17 summarizes the results of the statistical analysis. For each metric or parameter, the group with the largest mean value was assigned the letter A in Table D-17. If the mean value in all areas was statistically similar to one another, then all areas were assigned the letter A. If the mean value of an area was statistically lower than the one designated as A, then it was designated as B. If the mean value was statistically lower in the third area, then it was designated as C, and, in the fourth area, the letter D. If the mean was not statistically different between two different areas (A or B), it was given the designation AB. Thus, an area designated as AB lies between two areas significantly different from each other, but the AB area is not significantly different from either. Area-specific correlations are shown in Table D-18.

Number of taxa and total density showed identical spatial patterns. The highest values of these metrics were found in the Near Shore Area, followed by the Marina (which did not differ significantly from the Near Shore Area), the Offshore Area (which differed from the Near Shore Area but not the Marina), and the Dry Dock (which differed from the Near Shore Area and Marina but not the Offshore Area). Thus, total density and number of taxa

were highest in the Near Shore Area and most of the Marina, were zero in the immediate vicinity of the Dry Dock, and were typically very low in the Offshore Area. This distribution does not match well with metal or ABM concentrations, suggesting that other factors (such as low DO) may be as or more important to survival of benthic invertebrates. As discussed in Section D.5.2.1, a bottom DO of 4 mg/L is an approximate "threshold", at the water temperature and salinity present at the time of sampling, below which impacts to the benthic invertebrate community appear to be most acute. Bottom DO exceeds this value in most Near Shore (with two exceptions; one next to the Dry Dock and one in the southern portion of the site) and Marina grids. Bottom DO does not exceed this value in any Dry Dock grid and in about half of the Offshore Area grids (Figure D-20). Bottom DO is also negatively correlated with water depth; deepest water was generally observed in the Dry Dock and Offshore Area (Figure D-21).

Because a reference area was not sampled for benthic invertebrates, values for the two benthic invertebrate metrics used in the SWMU 3 evaluation (number of taxa and total density) were qualitatively compared among the spatial areas of the site (Figures D-22 and D-23). Values for these metrics were generally highest in the Near Shore and Marina Areas (where metals concentrations and ABM were typically highest) and lowest in the Offshore and Dry Dock Areas (where metals concentrations and ABM were typically lowest). Although the area in the vicinity of the Dry Dock has been dredged as recently as 2002, sufficient time has passed for the benthic community to become reestablished. It appears that physical factors, such as low bottom DO levels and water depth, may be preventing this from occurring since metal concentrations and ABM levels are below remediation criteria. Routine activities associated with Dry Dock activities, such as prop wash from tug boats and operation of the Dry Dock pumps, may also be a factor.

#### D.5.3 Risk Evaluation

In Section D.1.3, the following environmental question was outlined:

• What action is required at SWMU 3 to meet the preliminary RAO and what is the spatial extent of such an action?

In this section, the results for the lines of evidence evaluated are integrated to answer this question. The other two environmental questions from the SAP were evaluated in the previous section.

Because a suitable reference area was not sampled, there is insufficient data to fully evaluate the preliminary RAO (to allow a benthic invertebrate community consistent with the urban nature of Little Creek Harbor to become established) since a quantitative measure of a benthic invertebrate community consistent with the urban nature of Little Creek Harbor (but unaffected by SWMU 3) is unavailable. However, the portion of the site with the highest concentrations of metals and ABM (Near Shore Area and portions of the Marina) typically has the most developed benthic invertebrate community relative to other areas of the site (Dry Dock and Offshore Areas), where metals concentrations and ABM are typically lower. This may be due to limited metal bioavailability, as the SEM/AVS ratios were almost always less than one in 2010 samples (for 58 of 60 grids). Although AVS may vary seasonally, the 2010 data, collected in late summer when DO levels are typically lowest and organisms are typically most stressed, may be the most relevant data on a seasonal basis. None of the Dry Dock samples, and very few of the Offshore Area samples, fail both the percent ABM and RQ criteria. The impacts to the benthic invertebrate community in these areas appear to be related to physical factors not associated with SWMU 3 (such as water depth and bottom DO concentrations). Since ABM is essentially inert (based upon grain size analysis, ABM appears predominantly in the coarse sand fraction; the "black beauty" materials consist mainly of silicon dioxide [sand], aluminum oxide, iron oxide, and calcium oxide) and the metals in the paint residues do not decay (since they are elements, although they may change chemical form based upon ambient environmental conditions) and increase sediment oxygen demand, these site-related factors do not contribute to reduced DO levels at the bottom of the water column. Although the current, non-CERCLA-related physical characteristics of the site (such as bottom DO concentrations) may be having more of an impact on the condition of the benthic invertebrate community than the CERCLA-related metals detected in site sediments (due to bioavailability considerations), the magnitude of these metals concentrations may potentially result in unacceptable risks to ecological receptors should these physical characteristics change over time; therefore, remedial action at SWMU

3 is warranted. Given the current physical limitations in the Dry Dock and Offshore Areas (primarily low bottom DO concentrations), it is unlikely that a benthic invertebrate community that would approach that in a similar urban reference area would be established following remedial action; therefore, the remedial action objectives established for the site should focus on the reduction of metals concentrations and not the establishment of a comparable (to an urban reference condition) benthic invertebrate community.

### D.5.4 Risk Conclusions and Recommendations

Based upon the regression analysis, silt/clay and average RQ were the best predictors of the benthic invertebrate metrics, along with water depth and, to a lesser extent, bottom DO. However, average RQ was positively correlated with the metrics. Silt/clay was negatively correlated with the metrics, suggesting that depositional areas with high silt/clay content (and likely organic loading) were detrimental to the benthic invertebrate community. Water depth was also negatively correlated with the metrics while bottom DO was positively correlated. Thus, shallower waters with less deposition had higher levels of DO, allowing a relatively "healthier" benthic invertebrate community to occur, as measured by the benthic metrics evaluated. Conversely, these areas were generally along the site shoreline and thus tended to have higher concentrations of metals and ABM. Based upon these data, the physical factors (such as bottom DO) had more effect on the benthic invertebrate community than the chemical factors related to the site. This may be due to limited metal bioavailability as the SEM/AVS ratios were almost always less than one in 2010 samples (for 58 of 60 grids). Although AVS may vary seasonally, the 2010 data, collected in late summer when DO levels are typically lowest and organisms are typically most stressed, may be the most relevant data on a seasonal basis.

The portion of the site with the highest concentrations of metals and ABM (Near Shore Area and portions of the Marina) typically has the most developed benthic invertebrate community relative to other areas of the site (Dry Dock and Offshore Areas), where metals concentrations and ABM are typically lower. None of the Dry Dock samples, and very few of the Offshore Area samples, fail both the percent ABM and RQ criteria. The impacts to the benthic invertebrate community in these areas appear to be related to physical factors not associated with SWMU 3 (such as water depth and bottom DO concentrations). Since ABM is essentially inert (based upon grain size analysis, ABM appears predominantly in the coarse sand fraction; the "black beauty" materials consist mainly of silicon dioxide [sand], aluminum oxide, iron oxide, and calcium oxide) and the metals in the paint residues do not decay (since they are elements, although they may change chemical form based upon ambient environmental conditions) and increase sediment oxygen demand, these site-related factors do not contribute to reduced DO levels at the bottom of the water column.

Although the current, non-CERCLA-related physical characteristics of the site (such as bottom DO concentrations) may be having more of an impact on the condition of the benthic invertebrate community than the CERCLA-related metals detected in site sediments (due to bioavailability considerations), the magnitude of these metals concentrations may potentially result in unacceptable risks to ecological receptors should these physical characteristics change over time; therefore, remedial action at SWMU 3 is warranted. Given the current physical limitations in the Dry Dock and Offshore Areas (primarily low bottom DO concentrations), it is unlikely that a benthic invertebrate community that would approach that in a similar urban reference area would be established following remedial action; therefore, the remedial action objectives established for the site should focus on the reduction of metals concentrations and not the establishment of a comparable (to an urban reference condition) benthic invertebrate community.

# D.6 References for Attachment D

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TABLE D-1
Unvalidated Background Surface Sediment Data From Little Creek Cove - July 2007
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

	LREF-SD401	LREF-SD402	LREF-SD404	LREF-SD406	LREF-SD407	LREF-SD408	LREF-SD409	LREF-SD409P	LREF-SD410
Constituent	7/5/2007	7/5/2007	7/5/2007	7/5/2007	7/5/2007	7/5/2007	7/5/2007	7/5/2007	7/5/2007
Total Metals (MG/KG)									
Copper	174	184	110	155	152	161	128	154	150
Lead	50.2 *	67.6 *	37.7 *	50.3 *	38.6 *	40.4 *	34.7 *	40.4 *	36.3 *
Mercury	0.088 *	0.16 *	0.13 *	0.17 *	0.20 *	0.16 *	0.15 *	0.18 *	0.15 *
Nickel	18.3	22.7	21.9	25.8	26.5	25.5	21.2	24.8	19.8
Tin	6.80	8.80	9.50	9.00	9.80	9.20	7.20	9.00	6.80
Zinc	241 *	421 *	229 *	307 *	281 *	288 *	242 *	287 *	264 *
Other Parameters									
рН	7.50	8.20	8.10	8.00	7.90	8.10	8.20	7.90	8.10
Total organic carbon (MG/KG)	78,000	39,000	34,000	47,000	41,000	39,000	42,000	40,000	31,000
Percent fines	75.2	91.6	65.1	94.3	91.7	92.9	91.4	NA	79.2
AVS/SEM (UMOL/G)									
Acid volatile sulfide	NA	5.4	NA	NA	7.4	NA	0.5 U	12	NA
Cadmium	NA	0.0057 U	NA	NA	0.0057 U	NA	0.0053 U	0.0053 U	NA
Copper	NA	0.33	NA	NA	0.86	NA	0.016 U	0.11	NA
Lead	NA	0.14	NA	NA	0.14	NA	0.0048 U	0.11	NA
Mercury	NA	0.00011 U	NA	NA	0.0001 U	NA	0.0001 U	0.0016	NA
Nickel	NA	0.062	NA	NA	0.075	NA	0.017 U	0.055	NA
Zinc	NA	3.4	NA	NA	2.9	NA	0.03 U	2.6	NA

Shaded cells indicate detected values

NA - Not Analyzed

<sup>\* =</sup> The matrix spike duplicate was outside of the control limits

**TABLE D-2**ABM Regression Equations, Site-Specific Background Values, and Literature-Based Sediment Effect Levels for SWMU 3 Sediment COCs SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

		Regr	ession Equ	ation <sup>a</sup>						Mean	Maximum
Chemical	m	В	R <sup>2</sup>	р	1% ABM	ER-L	ER-M	TEL	PEL	Background	Background
Primary COCs (MG/KG)											
Copper	10.66	221.7	0.67	< 0.01	232	34.0	270	18.7	108	155	184
Lead	8.54	98.9	0.73	< 0.01	107	46.7	218	30.2	112	45.2	67.6
Nickel	1.64	24.5	0.45	< 0.01	26.2	20.9	51.6	15.9	42.8	23.2	26.5
Tin	2.10	9.07	0.77	< 0.01	11.2					8.61	9.80
Zinc	29.28	424.5	0.59	< 0.01	454	150	410	124	271	290	421
Secondary Factors (MG/KG)				-							
Mercury						0.15	0.71	0.13	0.70	0.15	0.20
Total DALIc						4.02	44.8	1.68	16.8		
Total PAHs								5.95 b	36.9 c		

Shaded cells indicate the selected PRG or qualitative assessment factor (for secondary chemicals)

- a Concentration = m (ABM) + B. For example, the tin concentration = 2.10 1 + 9.07 = 11.2
- b TEC (2.05% TOC)
- c MEC (2.05% TOC)

**TABLE D-3** 

Sorted Values for ABM Regression (1% ABM) , Site-Specific Background, and Literature-Based Sediment Effect Levels - SWMU 3 Sediment COCs SWMU 3 Benthic Invertebrate Evaluation

Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

Copper		Lead		Nickel		Tin		Zinc	
TEL	18.7	TEL	30.2	TEL	15.9	Mean Background	8.61	TEL	124
ER-L	34.0	Mean Background	45.2	ER-L	20.9	Max Background	9.80	ER-L	150
PEL	108	ER-L	46.7	Mean Background	23.2	1% ABM	11.2	PEL	271
Mean Background	155	Max Background	67.6	1% ABM	26.2	ER-L	NA	Mean Background	290
Max Background	184	1% ABM	107	Max Background	26.5	ER-M	NA	ER-M	410
1% ABM	232	PEL	112	PEL	42.8	TEL	NA	Max Background	421
ER-M	270	ER-M	218	ER-M	51.6	PEL	NA	1% ABM	454

Shaded cells indicate the selected PRG

**TABLE D-4**2002 and 2007 Water Column Parameter Measurements
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

· · · · · · · · · · · · · · · · · · ·		riigiilia Deacii, v	Dissolved			Salinity	Specific Conductivity	Temperature	Turbidity
Station	Depth	Date	Oxygen (mg/L)	ORP (MV)	рН	(ppt)	(ms/cm)	(C)	(NTU)
LW03-A-SD201	Surface	10/3/2002	12.6	65	6.60	19.3	29.8	27.0	0
LW03-A-SD201	Subsurface	10/3/2002	13.2	65	6.61	20.0	31.7	27.1	0
LW03-A-SD202	Surface	10/4/2002	11.0	65	6.30	14.4	12.7	24.9	0
LW03-A-SD202	Subsurface	10/4/2002	11.5	-163	8.35	16.0	28.1	25.1	0
LW03-B-SD201	Surface	10/2/2002	12.6	59	6.27	19.1	30.5	26.1	0
LW03-B-SD201	Subsurface	10/2/2002	13.5	61	6.24	19.1	30.5	26.1	0
LW03-B-SD202	Surface	10/3/2002	11.4	222	5.84	20.1	31.7	25.0	0
LW03-B-SD202	Subsurface	10/3/2002	11.5	2.04	6.35	20.4	32.4	24.7	600
LW03-C-SD201	Surface	10/2/2002	10.8	148	5.93	19.5	31.1	25.7	0
LW03-C-SD201	Subsurface	10/2/2002	11.1	1.47	5.93	19.9	31.7	25.1	25.1
LW03-C-SD202	Surface	10/2/2002	12.8	139	6.12	18.6	29.9	26.0	0
LW03-C-SD202	Subsurface	10/2/2002	9.15	-134	8.26	19.7	31.4	24.3	0
LW03-D-SD201	Surface	10/2/2002	8.90	2.17	5.28	18.3	29.6	23.8	0
LW03-D-SD201	Subsurface	10/2/2002	8.18	2.10	5.58	19.7	31.1	24.2	0
LW03-D-SD202	Surface	10/2/2002	9.30	173	5.96	19.3	31.2	24.4	0
LW03-D-SD202	Subsurface	10/2/2002	8.92	-86	8.12	19.9	31.3	24.1	0
LW03-E-SD201	Surface	10/3/2002	13.6	10	6.91	20.3	32.3	26.4	0
LW03-E-SD201	Subsurface	10/3/2002	13.5	15	6.81	20.6	32.6	25.4	0
LW03-E-SD202	Surface	10/3/2002	11.3	74	6.18	16.3	26.4	25.2	0
LW03-E-SD202	Subsurface	10/4/2002	4.26	-320	10.1	13.6	22.0	24.6	0
LW03-E1-SD202	Surface	10/3/2002	10.3	191	5.35	15.9	26.4	25.1	0
LW03-E1-SD202	Subsurface	10/4/2002	9.07	-224	9.37	17.4	27.7	24.4	0
LW03-F-SD201	Surface	10/4/2002	12.1	50	6.14	15.5	25.0	26.5	0
LW03-F-SD201	Subsurface	10/4/2002	11.9	-162	7.75	17.6	28.3	25.2	0
LW03-F-SD202	Surface	10/4/2002	12.6	42	6.16	16.8	26.9	26.0	0
LW03-F-SD202	Subsurface	10/4/2002	11.4	-215	8.58	17.6	28.5	24.8	0
LW03-G-SD201	Surface	10/4/2002	11.6	-220	8.35	14.4	23.6	25.8	0
LW03-G-SD201	Subsurface	10/4/2002	24.8	-305	9.05	16.6	27.1	24.8	0
LW03-G-SD202	Surface	10/4/2002	NA	-1.00	6.11	16.8	27.1	25.8	0
LW03-G-SD202	Subsurface	10/4/2002	10.8	-7.00	6.20	17.9	28.8	24.6	13.4
LW03-SD201	Surface	10/3/2002	9.91	1.52	6.37	20.0	32.0	25.5	0

**TABLE D-4**2002 and 2007 Water Column Parameter Measurements
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

Joint Expeditionary Ba	,	, , , , , , , , , , , , , , , , , , ,	Dissolved			Salinity	Specific Conductivity	Temperature	Turbidity
Station	Depth	Date	Oxygen (mg/L)	ORP (MV)	рН	(ppt)	(ms/cm)	(C)	(NTU)
LW03-SD201	Subsurface	10/3/2002	9.98	148	6.39	20.8	32.5	25.3	95.6
LW03-SD204	Surface	10/3/2002	11.3	147	6.58	20.8	33.0	25.0	0
LW03-SD204	Subsurface	10/3/2002	11.0	-133	9.10	14.8	22.6	24.6	0
LW03-SD205	Surface	10/3/2002	26.2	62	6.97	20.2	30.8	26.2	0
LW03-SD205	Subsurface	10/3/2002	9.42	-294	9.99	16.5	26.6	24.2	0
LW03-SD206	Surface	10/3/2002	12.8	147	6.64	19.7	31.2	26.1	0
LW03-SD206	Subsurface	10/3/2002	12.2	-112	8.98	20.4	32.5	24.6	0
LW03-C2-SD301	Surface	2/20/2007	11.9	28	7.89	19.0	19.0	4.30	130
LW03-C2-SD301	Middle	2/20/2007	11.0	-49	7.67	21.0	21.0	4.31	
LW03-C2-SD301	Bottom	2/20/2007	10.8	-31	7.75	21.0	21.0	4.77	
LW03-C2-SD302	Surface	2/20/2007	11.4	86	8.59	21.0	21.0	3.98	260
LW03-C2-SD302	Middle	2/20/2007	11.1	79	8.45	22.0	21.0	3.88	320
LW03-C2-SD302	Bottom	2/20/2007	11.0	72	8.27	22.0	21.0	3.71	330
LW03-D-SD329	Surface	2/22/2007	14.1	211	8.13	22.0	37.6	4.91	43
LW03-D-SD329	Middle	2/22/2007	12.9	218	8.06	23.0	37.6	4.33	56
LW03-D-SD329	Bottom	2/22/2007	11.1	225	8.02	23.0	38.1	4.40	93
LW03-D-SD330	Surface	2/22/2007	13.8	74	8.09	22.0	36.9	4.67	19
LW03-D-SD330	Middle	2/22/2007	13.5	63	8.05	23.0	37.9	4.37	22
LW03-D-SD330	Bottom	2/22/2007	12.1	25	7.94	23.0	38.4	4.41	49
LW03-F2-SD303	Surface	2/21/2007	9.59	2	8.73	21.0	20.0	4.74	160
LW03-F2-SD303	Middle	2/21/2007	6.81	-38	8.60	22.0	21.0	3.77	170
LW03-F2-SD303	Bottom	2/21/2007	4.48	-103	8.33	28.0	29.0	6.73	
LW03-F2-SD305	Surface	2/21/2007	11.2	78	8.87	21.0	20.0	4.39	150
LW03-F2-SD305	Middle	2/21/2007	11.0	77	8.82	30.0	21.0	3.78	
LW03-F2-SD305	Bottom	2/21/2007	11.0	75	8.79	22.0	21.0	3.70	
LW03-F2-SD306	Surface	2/21/2007	11.4	-144	8.01	20.0	20.0	4.40	250
LW03-F2-SD306	Middle	2/21/2007	11.0	-162	8.01	20.0	20.0	4.38	410
LW03-F2-SD306	Bottom	2/21/2007	10.9	-160	8.11	21.0	21.0	4.54	480
LW03-G-SD331	Surface	2/23/2007	13.7	14	7.77	22.0	36.7	4.55	
LW03-G-SD331	Middle	2/23/2007	14.1	18	7.75	22.0	37.0	4.41	
LW03-G-SD331	Bottom	2/23/2007	12.0	28	7.70	23.0	37.6	4.42	

TABLE D-4
2002 and 2007 Water Column Parameter Measurements
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

Joint Expeditionary ba	1	<u>, , , , , , , , , , , , , , , , , , , </u>	Dissolved			Salinity	Specific Conductivity	Temperature	Turbidity
Station	Depth	Date	Oxygen (mg/L)	ORP (MV)	рН	(ppt)	(ms/cm)	(C)	(NTU)
LW03-G-SD333	Surface	2/23/2007	12.4	133	8.12	22.0	36.8	4.53	
LW03-G-SD333	Middle	2/23/2007	12.2	133	8.10	22.0	36.9	4.54	
LW03-G-SD333	Bottom	2/23/2007	11.5	133	8.01	23.0	37.9	4.46	
LW03-H-SD307	Surface	2/21/2007	11.5	76	8.76	20.0	20.0	4.62	
LW03-H-SD307	Middle	2/21/2007	11.2	71	8.70	20.0	20.0	4.30	
LW03-H-SD307	Bottom	2/21/2007	11.0	61	8.68	21.0	20.0	3.93	
LW03-H-SD312	Surface	2/21/2007	12.1	170	8.77	19.0	19.0	5.24	
LW03-H-SD312	Middle	2/21/2007	11.7	171	8.62	19.0	19.0	4.45	
LW03-H-SD312	Bottom	2/21/2007	11.3	173	8.41	20.0	20.0	4.31	
LW03-H-SD316	Surface	2/21/2007	12.8	102	9.13	19.0	19.0	5.36	
LW03-H-SD316	Middle	2/21/2007	12.0	96	9.03	20.0	19.0	4.31	
LW03-H-SD316	Bottom	2/21/2007	11.2	83	8.93	20.0	20.0	4.30	
LW03-I-SD317	Surface	2/22/2007	12.8	105	9.13	19.0	19.0	5.62	
LW03-I-SD317	Middle	2/22/2007	12.6	99	9.09	19.0	19.0	5.31	
LW03-I-SD317	Bottom	2/22/2007	12.1	88	9.04	20.0	19.0	4.39	
LW03-I-SD319	Surface	2/22/2007	11.9	104	9.18	17.0	17.0	5.13	
LW03-I-SD319	Middle	2/22/2007	11.5	99	9.15	19.0	19.0	4.50	
LW03-I-SD319	Bottom	2/22/2007	11.2	94	8.91	20.0	20.0	4.48	
LW03-I-SD323	Surface	2/22/2007	11.9	91	9.26	20.0	20.0	5.32	5
LW03-I-SD323	Middle	2/22/2007	10.9	84	8.91	21.0	21.0	4.59	150
LW03-I-SD323	Bottom	2/22/2007	10.3	71	8.88	22.0	21.0	4.43	710
LW03-I-SD326	Surface	2/22/2007	15.1	141	8.09	22.0	36.1	5.16	36
LW03-I-SD326	Middle	2/22/2007	13.0	135	7.96	23.0	38.0	4.39	37
LW03-I-SD326	Bottom	2/22/2007	10.8	118	7.81	23.0	38.7	4.31	71

TABLE D-5
2010 Water Column Parameter Measurements
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

,				Temperature	Dissolved	Specific Conductivity	Turbidity		Salinity
Sample ID	Date	Depth (feet)	рН	(°C)	Oxygen (mg/L)	(ms/cm)	(NTU)	ORP (mV)	(ppt)
LW03-SD501-00-10C	9/2/2010	0.88	7.88	26.21	6.52	37.15	2.3	-27.9	20.65
		2.3	7.84	26.60	5.90	38.29	2.4	-15.2	24.92
		4.3	7.85	26.55	5.78	39.48	4.6	-9.5	25.10
LW03-SD502-00-10C	9/2/2010	0.8	7.91	26.51	7.04	38.25	3.2	66.7	24.61
		4.7	7.83	26.38	5.43	39.74	3.5	69.5	25.30
		7.7	7.75	26.23	4.48	40.02	7.3	69.4	25.42
LW03-SD503-00-10C	9/2/2010	0.6	7.92	26.56	7.11	36.06	2.9	79.8	22.85
		1.6	7.82	26.75	5.75	39.11	3.8	81.3	24.86
		3.7	7.76	26.64	4.54	39.50	5.7	80.4	25.13
LW03-SD504-00-10C	8/31/2010	0.9	7.89	26.10	6.65	38.66	2.7	75.7	24.33
		9.4	7.81	26.19	5.66	40.02	3.3	78.1	25.49
		16.3	7.73	26.08	0.78	40.28	8.8	-102.9	25.70
LW03-SD504A-00-10C	8/31/2010	0.9	7.85	26.56	6.30	39.01	1.8	155.2	24.73
		6.3	7.84	26.40	5.84	39.61	3.1	158.6	25.20
		11.5	7.77	26.13	4.35	40.18	9.7	163.4	25.63
LW03-SD505-00-10C	8/31/2010	0.5	7.89	25.84	6.89	36.67	2.8	23.8	22.48
		6.5	7.86	26.41	5.97	39.61	2.3	35.3	25.25
		13.4	7.81	26.09	5.09	40.31	4.6	37.0	25.71
LW03-SD506-00-10C	9/10/2010	1.0	7.83	25.12	6.15	35.69	1.9	150.9	22.64
		6.7	7.81	25.75	5.59	38.30	4.9	151.1	24.29
		12.6	7.81	25.56	5.34	38.25	6.5	150.8	24.27
LW03-SD507-00-10C	9/2/2010	0.6	7.89	26.65	6.78	38.46	3.3	83.4	24.46
		4.8	7.82	26.38	5.51	39.61	4.1	84.4	25.22
		7.8	7.75	26.30	4.51	39.90	6.0	84.3	25.43
LW03-SD508-00-10C	9/10/2010	0.9	7.93	25.69	7.58	34.27	2.9	141.5	21.58
		3.1	7.89	25.97	6.68	37.02	3.0	142.6	23.32
		5.0	7.89	26.02	6.56	37.50	NA	103.1	23.74
LW03-SD509-00-10C	9/9/2010	0.5	7.73	25.37	4.63	39.17	3.1	138.8	21.44
		2.5	7.78	25.85	4.66	35.33	2.5	137.4	22.25
		4.6	7.79	25.86	4.55	35.42	5.6	136.3	22.29

TABLE D-5
2010 Water Column Parameter Measurements
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

•				Temperature	Dissolved	Specific Conductivity	Turbidity		Salinity
Sample ID	Date	Depth (feet)	рН	(°C)	Oxygen (mg/L)	(ms/cm)	(NTU)	ORP (mV)	(ppt)
LW03-SD510-00-10C	8/31/2010	1.1	7.90	26.52	6.73	38.96	2.2	66.8	24.72
		8.7	7.85	26.32	5.77	39.82	2.1	71.0	25.41
		18.1	7.74	26.06	4.19	40.42	7.5	72.7	25.80
LW03-SD511-00-10C	8/31/2010	0.7	7.89	26.51	6.67	39.40	2.2	44.6	25.00
		8.4	7.82	26.22	5.43	40.02	2.5	46.4	25.48
		19.8	7.81	26.09	5.03	40.31	4.6	47.6	25.73
LW03-SD512-00-10C	9/2/2010	1.1	7.94	26.56	7.46	37.73	2.0	61.3	24.00
		7.9	7.86	26.17	5.82	40.08	2.0	63.4	25.53
		13.3	7.82	26.11	5.25	40.18	3.0	64.1	25.63
LW03-SD513-00-10C	9/10/2010	1.1	7.85	25.26	6.34	36.24	1.8	152.9	22.84
		8.1	7.82	25.56	5.80	38.24	4.0	153.5	24.27
		13.8	7.78	25.47	4.90	38.28	15.8	151.5	24.30
LW03-SD514-00-10C	9/10/2010	0.9	7.87	25.81	7.24	34.75	2.8	124.1	22.05
		5.6	7.89	26.15	6.82	37.93	1.8	124.8	24.04
		9.7	7.75	25.54	5.02	38.24	7.9	124.4	24.28
LW03-SD515-00-10C	9/9/2010	0.8	7.88	26.24	6.15	31.52	3.6	114.8	19.87
		4.4	7.84	26.01	5.34	35.23	4.7	116.4	22.15
		8.7	7.84	25.84	5.15	35.33	6.3	116.2	22.22
LW03-SD516-00-10C	9/9/2010	0.9	7.77	23.87	5.56	31.81	2.2	146.4	19.58
		2.5	7.76	25.01	5.07	34.21	2.2	146.8	21.42
		3.3	7.76	25.53	4.51	34.67	3.0	145.9	21.89
LW03-SD517-00-10C	8/31/2010	1.2	7.87	26.54	6.53	38.33	2.4	62.8	24.34
		10.5	7.85	26.17	6.02	40.15	2.4	71.1	25.61
		18.6	7.67	26.01	3.07	40.56	11.1	51.4	25.90
LW03-SD518-00-10C	8/31/2010	0.7	7.90	26.56	6.95	38.26	2.4	53.0	24.30
		10.9	7.85	26.13	5.67	40.21	2.3	57.0	25.65
		19.2	7.76	26.07	4.41	40.36	17.7	-27.4	25.76
LW03-SD519-00-10C	9/2/2010	6.0	7.94	26.58	7.19	38.76	2.3	52.4	24.31
		9.9	7.85	26.17	5.77	40.08	2.2	55.1	25.55
		17.3	7.80	26.09	4.96	40.24	9.8	55.7	25.66

TABLE D-5
2010 Water Column Parameter Measurements
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

,				Temperature	Dissolved	Specific Conductivity	Turbidity		Salinity
Sample ID	Date	Depth (feet)	рН	(°C)	Oxygen (mg/L)	(ms/cm)	(NTU)	ORP (mV)	(ppt)
LW03-SD520-00-10C	9/10/2010	0.5	7.83	25.09	4.94	34.47	2.3	180.0	21.66
		7.8	7.83	25.81	5.79	38.28	2.9	170.4	24.29
		14.7	7.75	25.43	4.86	38.31	10.0	164.8	24.32
LW03-SD521-00-10C	9/12/2010	0.9	7.71	25.14	4.63	35.89	1.6	159.6	22.59
		6.3	7.83	24.91	5.84	36.36	1.5	159.5	22.96
		14.8	7.76	25.02	5.32	36.45	3.8	156.1	23.02
LW03-SD522-00-10C	9/9/2010	0.5	7.90	26.31	6.23	34.11	3.5	117.1	21.43
		4.3	7.87	25.93	5.80	35.12	2.4	118.7	22.08
		8.8	7.84	25.80	5.13	35.33	8.7	118.9	22.22
LW03-SD523-00-10C	9/9/2010	0.9	7.82	25.83	5.09	35.22	2.4	125.6	22.11
		3.6	7.84	25.86	5.14	35.36	2.8	124.8	22.23
		6.0	7.85	25.74	5.13	35.34	4.5	124.9	22.24
LW03-SD525-00-10C	9/2/2010	1.2	7.96	26.53	7.17	38.36	2.5	42.2	24.18
		9.2	7.85	26.18	5.75	40.07	2.0	45.1	25.55
		19.0	7.78	26.07	4.72	40.31	10.3	42.5	25.72
LW03-SD526-00-10C	9/10/2010	0.7	7.90	25.24	7.18	35.48	2.3	155.4	22.50
		9.2	7.83	25.78	5.67	38.28	3.3	156.4	24.29
		16.6	7.74	27.73	4.07	38.30	11.8	69.3	24.31
LW03-SD527-00-10C	9/12/2010	0.8	7.76	25.00	5.47	36.15	1.4	177.6	22.74
		5.7	7.83	24.93	6.03	36.34	1.6	177.2	22.90
		12.9	7.79	25.01	5.62	36.43	1.9	176.9	23.01
LW03-SD528-00-10C	9/9/2010	0.6	7.89	26.31	6.37	34.10	2.3	122.7	21.48
		6.7	7.88	25.96	5.96	35.22	2.7	122.7	22.15
		12.3	7.81	25.77	4.93	35.35	11.0	120.5	22.24
LW03-SD529-00-10C	9/9/2010	0.9	7.85	25.83	5.44	35.32	2.2	125.2	22.22
		4.3	7.85	25.73	5.28	35.34	3.1	125.1	22.24
		8.5	7.84	25.68	5.14	35.35	4.7	125.0	22.24
LW03-SD530-00-10C	9/2/2010	0.7	7.89	26.56	6.77	38.83	2.1	13.3	24.36
		10.7	7.86	26.16	5.83	40.07	2.2	18.9	25.55
		20.3	7.76	26.04	3.78	40.40	5.9	20.0	25.83

TABLE D-5
2010 Water Column Parameter Measurements
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

·				Temperature	Dissolved	Specific Conductivity	Turbidity		Salinity
Sample ID	Date	Depth (feet)	рН	(°C)	Oxygen (mg/L)	(ms/cm)	(NTU)	ORP (mV)	(ppt)
LW03-SD533-00-10C	9/1/2010	0.9	7.90	26.81	6.89	39.13	2.4	-40.3	24.73
		10.8	7.89	26.14	6.20	39.81	2.5	-29.5	25.36
		18.1	7.70	26.13	3.62	40.20	7.4	-29.8	25.68
LW03-SD534-00-10C	9/1/2010	1.2	7.90	26.47	6.57	39.62	2.2	94.1	25.21
		15.5	7.83	26.16	5.40	40.16	3.2	94.7	25.59
		29.7	6.83	25.62	0.54	41.32	50.0	-154.8	26.47
LW03-SD535-00-10C	9/1/2010	0.7	7.82	27.32	5.99	38.70	2.8	-19.0	39.03
		7.3	7.86	26.42	5.90	39.58	2.8	-10.0	25.18
		12.3	7.78	26.20	4.64	39.82	4.7	-7.3	25.37
LW03-SD537-00-10C	9/1/2010	1.1	7.94	26.87	7.26	38.50	2.1	-50.7	24.78
		9.5	7.87	26.19	6.14	39.89	1.9	-33.5	25.42
		17.4	7.80	26.11	4.82	40.13	7.8	-26.8	25.59
LW03-SD538-00-10C	9/1/2010	0.6	7.93	26.64	7.12	39.23	2.4	-7.3	24.96
		15.4	7.84	26.15	5.59	40.01	2.7	-1.8	25.50
		26.2	7.25	25.94	0.77	41.16	8.5	-134.0	26.32
LW03-SD539-00-10C	9/1/2010	0.5	7.93	27.05	7.15	39.08	2.0	18.5	24.84
		15.1	7.77	26.17	4.54	39.90	4.3	21.5	25.42
		29.3	7.16	25.54	0.54	41.22	28.0	-174.9	26.37
LW03-SD540-00-10C	9/1/2010	0.6	7.97	26.72	7.50	39.28	2.4	-59.8	25.03
		8.1	7.92	26.27	6.72	39.59	2.1	-48.0	25.21
		16.2	7.73	26.11	4.03	40.01	6.6	-43.1	25.49
LW03-SD541-00-10C	9/7/2010	1.1	7.96	26.79	7.55	39.24	1.8	-9.4	24.95
		6.8	7.90	26.51	6.33	39.50	1.6	-5.0	25.15
		10.7	7.85	26.29	5.80	39.66	7.0	-33.4	25.26
LW03-SD543-00-10C	9/1/2010	0.5	7.96	26.93	7.52	36.76	2.4	-4.6	23.57
		10.8	7.86	26.17	5.99	39.91	2.4	4.3	25.42
		19.1	7.68	26.05	3.40	40.45	5.2	6.1	25.72
LW03-SD544-00-10C	9/1/2010	8.0	7.95	27.07	7.39	39.03	2.5	15.6	24.58
		17.1	7.80	26.10	4.96	40.18	5.7	14.5	25.66
		31.4	6.97	25.04	0.63	41.39	14.5	-189.2	26.49

TABLE D-5
2010 Water Column Parameter Measurements
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

	-			Temperature	Dissolved	Specific Conductivity	Turbidity		Salinity
Sample ID	Date	Depth (feet)	рН	(°C)	Oxygen (mg/L)	(ms/cm)	(NTU)	ORP (mV)	(ppt)
LW03-SD545-00-10C	9/1/2010	1.1	7.90	27.21	7.29	39.04	1.8	11.5	24.64
		10.8	7.86	26.21	6.17	39.71	1.9	14.7	25.28
		18.9	7.63	26.03	2.90	40.26	8.3	7.3	25.66
LW03-SD546-00-10C	9/1/2010	1.6	7.97	26.46	7.48	39.39	2.0	8.9	25.05
		9.5	7.93	26.36	6.77	39.55	2.0	12.0	25.18
		18.1	7.72	26.06	3.07	40.01	8.2	-75.0	25.50
LW03-SD547-00-10C	9/7/2010	1.1	7.95	27.13	7.58	38.48	2.0	62.5	24.68
		8.9	7.88	26.34	6.34	39.54	2.0	63.1	25.16
		15.9	7.75	26.17	4.29	39.87	92.0	44.8	25.41
LW03-SD548-00-10C	9/9/2010	0.5	7.84	25.13	6.28	32.03	3.2	130.3	21.38
		12.6	7.86	25.63	5.61	35.42	5.2	126.1	22.32
		21.6	7.91	25.44	5.32	35.42	5.2	162.1	22.32
LW03-SD549-00-10C	9/9/2010	1.1	7.86	25.90	6.13	34.37	1.6	120.3	21.58
		10.3	7.86	25.70	5.62	35.30	2.0	120.4	22.21
		20.5	7.87	25.50	5.12	35.35	33.0	60.3	22.36
LW03-SD550-00-10C	9/8/2010	0.6	7.82	26.37	5.33	37.46	2.7	105.1	23.73
		10.9	7.79	26.18	4.44	37.77	2.9	105.2	23.93
		18.6	7.74	25.88	4.09	37.75	6.4	87.9	23.92
LW03-SD551-00-10C	9/8/2010	0.7	7.85	NA	5.64	36.87	2.9	112.4	23.45
		9.8	7.82	NA	4.90	37.61	2.6	112.9	23.82
		18.5	7.87	NA	5.15	37.69	10.2	112.8	23.87
LW03-SD552-00-10C	9/7/2010	0.7	8.01	27.33	8.27	37.90	2.7	98.8	23.47
		10.5	7.93	26.37	6.80	39.49	2.1	100.3	25.14
		17.5	7.81	26.20	4.79	39.74	3.1	89.9	25.33
LW03-SD553-00-10C	9/7/2010	1.0	7.94	26.84	7.54	38.62	2.7	80.4	24.33
		6.6	7.93	26.48	7.11	39.39	3.1	81.0	25.06
		13.2	7.85	26.25	5.88	39.63	2.8	81.2	25.22
LW03-SD555-00-10C	9/9/2010	0.9	7.87	25.93	5.56	33.48	2.3	111.2	21.10
		9.5	7.88	25.83	5.83	35.27	1.6	111.1	22.18
		NA	7.89	19.70	5.55	35.46	4.9	85.0	22.36

TABLE D-5
2010 Water Column Parameter Measurements
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

				Temperature	Dissolved	Specific Conductivity	Turbidity		Salinity
Sample ID	Date	Depth (feet)	рН	(°C)	Oxygen (mg/L)	(ms/cm)	(NTU)	ORP (mV)	(ppt)
LW03-SD556-00-10C	9/8/2010	0.5	7.84	26.46	5.55	36.81	2.8	112.2	23.35
		9.7	7.88	25.95	5.45	37.59	2.0	112.2	23.76
		18.7	7.80	25.83	1.76	37.73	7.7	110.0	23.90
LW03-SD557-00-10C	9/8/2010	0.8	7.90	26.31	5.10	37.24	9.0	119.4	23.68
		11.1	7.83	26.09	5.02	37.64	2.7	118.5	23.83
		NA	7.86	20.50	4.70	37.68	10.1	102.6	23.89
LW03-SD558-00-10C	9/8/2010	0.7	7.83	25.63	5.61	36.33	1.6	135.2	22.86
		12.9	7.83	26.20	5.07	37.66	2.0	134.8	23.85
		22.4	7.72	26.07	3.56	37.86	8.6	132.4	23.99
LW03-SD559-00-10C	9/7/2010	0.8	7.94	26.84	7.02	38.53	1.9	95.1	24.23
		6.0	7.90	26.37	7.03	39.25	1.9	95.5	24.98
		11.3	7.90	26.29	6.35	39.41	1.7	95.8	25.09
LW03-SD562-00-10C	9/8/2010	0.5	7.85	26.23	5.45	37.48	3.1	111.6	23.74
		10.6	7.86	25.92	5.19	37.62	2.6	112.0	23.85
		18.7	7.79	25.81	4.07	37.71	9.7	37.4	23.88
LW03-SD563-00-10C	9/8/2010	1.3	7.84	26.13	4.99	37.37	2.3	116.6	23.67
		10.1	7.83	26.03	5.06	37.65	2.3	116.1	23.85
		20.5	7.84	25.83	2.60	37.67	9.4	45.4	23.87
LW03-SD564-00-10C	9/8/2010	0.6	7.83	26.09	5.48	36.92	2.2	119.5	23.45
		11.5	7.80	26.09	4.61	37.60	3.7	119.9	23.81
		22.5	7.78	26.03	2.20	37.82	6.6	15.0	23.95
LW03-SD567-00-10C	9/8/2010	1.1	7.88	26.35	5.60	37.31	3.3	102.6	23.66
		10.6	7.89	25.84	5.61	37.58	2.3	103.7	23.73
		18.7	7.80	25.83	4.16	37.67	5.0	83.0	23.87
LW03-SD571-00-10C	9/8/2010	1.2	7.88	26.26	5.65	37.40	2.2	110.4	23.59
		11.5	7.88	25.84	5.30	37.61	2.7	111.0	23.80
		18.5	7.79	25.72	2.31	37.70	NA	66.5	23.88
LW03-SD574-00-10C	8/31/2010	0.9	7.87	26.61	6.55	38.40	2.0	151.2	24.71
		10.5	7.84	26.14	5.45	40.15	3.0	150.6	25.61
		17.2	7.68	26.02	3.54	40.55	4.9	41.6	25.91

NA - Not Available

TABLE D-6
2002 and 2007 Sediment Parameter Measurements
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

•	_			Maximum		Depth of Petroleum		Total Organic										
				Depth of		Material or Odors	Ammonia	Carbon			CEC	SEM/AVS	Coarse	Fine	Coarse	Medium	Fine	Silt/
Sample	Date	Area	Depth (in)	ABM (in)	Percent ABM	(in)	(mg/kg)	(mg/kg)	рН	Redox	(meq/100g)	Ratio	gravel	gravel	sand	sand	sand	Clay
Surface Sediment																		•
LW03-A-SD201-00-02C	10/3/2002	Near Shore	0 - 4	4	Abundant		2.50 U	3,015	8.13	NS	NS	NS	0.00	2.49	2.77	41.43	50.67	2.65
LW03-A-SD201P-00-02C	10/3/2002	Near Shore	0 - 4	4	Abundant		2.53 U	2,267	8.17	NS	NS	NS	NS	NS	NS	NS	NS	NS
LW03-A-SD202-00-02C	10/4/2002	Offshore	0 - 4	4	< 5.0		23.1	27,980	7.75	NS	NS	NS	0.00	0.00	0.00	0.82	9.86	89.32
LW03-A-SD202P-00-02C	10/4/2002	Offshore	0 - 4	4	< 5.0		26.9	23,960	7.97	NS	NS	NS	NS	NS	NS	NS	NS	NS
LW03-A-SD203-00-02C	10/4/2002	Marina	0 - 4	4	5.0		2.55 U	2,900	8.18	NS	NS	NS	0.00	0.00	0.42	34.68	60.27	4.62
LW03-B-SD201-00-02C	10/2/2002	Near Shore	0 - 4	4	Present		4.81	1,713	7.79	NS	NS	NS	0.00	2.03	3.55	39.13	45.19	10.09
LW03-B-SD202-00-02C	10/3/2002	Offshore	0 - 4	4	30		2.61 U	3,833	8.29	NS	3.40	5.83	0.00	0.75	1.03	25.25	63.78	9.18
LW03-B-SD202P-00-02C	10/3/2002	Offshore	0 - 4	4	30		2.54 U	3,590	8.06	NS	NS	NS	NS	NS	NS	NS	NS	NS
LW03-B-SD203-00-02C	10/3/2002	Offshore	0 - 4	4	5.0		4.30	8,246	8.19	NS	NS	NS	0.00	0.90	1.87	23.58	46.81	26.84
LW03-C-SD201-00-02C	10/2/2002	Near Shore	0 - 4	4	90		2.98	2,063	7.97	NS	NS	NS	0.00	0.74	3.06	54.99	38.34	2.86
LW03-C-SD202-00-02C	10/2/2002	Offshore	0 - 4	4	10		9.73	22,010	8.14	NS	NS	NS	0.00	0.00	0.23	4.56	20.33	74.89
LW03-C-SD203-00-02C	10/2/2002	Marina	0 - 4	4	< 5.0		30.5	24,170	7.62	NS	NS	NS	0.00	0.00	0.00	1.39	6.01	92.60
LW03-D-SD201-00-02C	10/2/2002	Near Shore	0 - 4	4	Abundant		2.55 U	5,008	8.32	NS	3.50	9.88	0.00	1.79	2.65	39.79	52.52	3.26
LW03-D-SD202-00-02C	10/2/2002	Offshore	0 - 4	4	5.0		4.71	21,890	8.14	NS	NS	NS	0.00	0.00	0.15	5.08	20.83	73.94
LW03-D-SD203-00-02C	10/2/2002	Offshore	0 - 4	4	5 - 10		23.5	26,880	8.04	NS	NS	NS	0.00	0.00	0.10	1.19	10.31	88.40
LW03-E-SD201-00-02C	10/3/2002	Near Shore	0 - 4	4	Present		3.57	1,746	7.94	NS	NS	NS	0.00	7.05	6.01	53.75	30.09	3.10
LW03-E-SD202-00-02C	10/3/2002	Offshore	0 - 4	4	< 3.0		82.8	29,400	8.19	NS	NS	NS	NS	NS	NS	NS	NS	NS
LW03-E-SD203-00-02C	10/3/2002	Offshore	0 - 4	0	0.0		150	38,600	8.16	NS	NS	NS	NS	NS	NS	NS	NS	NS
LW03-E1-SD202-00-02C	10/3/2002	Offshore	0 - 4	4	Present		197	46,890	8.15	NS	NS	NS	0.00	0.22	0.51	3.02	8.18	88.08
LW03-E1-SD203-00-02C	10/3/2002	Offshore	0 - 4	0	0.0		255	28,560	8.00	NS	NS	NS	NS	NS	NS	NS	NS	NS
LW03-F-SD201-00-02C	10/4/2002	Near Shore	0 - 4	4	95		2.50 U	6,180	7.22	NS	NS	NS	0.00	1.52	4.43	61.91	26.63	5.51
LW03-F-SD202-00-02C	10/4/2002	Offshore	0 - 4	4	< 5.0		55.6	31,630	7.62	NS	NS	NS	0.00	0.00	0.36	3.19	13.84	82.61
LW03-F-SD203-00-02C	10/4/2002	Offshore	0 - 4	0	0.0		NS	31,740	8.18	NS	NS	NS	0.00	0.00	0.12	2.49	12.37	85.03
LW03-G-SD201-00-02C	10/4/2002	Near Shore	0 - 4	4	20 - 30		9.42	15,260	8.00	NS	NS	NS	0.00	3.80	11.88	30.87	33.60	19.85
LW03-G-SD201P-00-02C	10/4/2002	Near Shore	0 - 4	4	20 - 30		8.55	5,325	8.02	NS	NS	NS	NS	NS	NS	NS	NS	NS
LW03-G-SD202-00-02C	10/4/2002	Offshore	0 - 4	4	< 5.0		18.7	31,600	8.00	NS	NS	NS	0.00	12.34	1.46	23.69	46.40	16.10
LW03-SD101	9/19/1998	Near Shore	0 - 4	4	Present		NS	971	NS	NS	NS	NS	0.00	4.70	1.20	15.90	36.30	41.90
LW03-SD102	9/19/1998	Near Shore	0 - 4	4	Present		NS	1,850	NS	NS	NS	NS	0.00	3.30	1.50	52.30	40.60	2.30
LW03-SD103	9/19/1998	Near Shore	0 - 4	4	Present		NS	2,170	NS	NS	NS	NS	0.00	13.10	16.50	43.20	25.20	2.00
LW03-SD104	9/18/1998	Near Shore	0 - 4	4	Present		NS	3,850	NS	NS	NS	NS	0.30	6.80	8.00	46.10	34.30	4.80
LW03-SD201-00-02C	10/3/2002	Marina	0 - 4	4	Abundant		2.52 U	1,976	7.90	NS	0.92	3.64	4.99	7.38	2.38	41.48	41.91	1.87
LW03-SD204-00-02C	10/3/2002	Marina	0 - 4	4	< 1.0		7.88	27,280	8.16	NS	13.0	0.51	0.00	0.00	0.03	2.10	20.89	
LW03-SD205-00-02C	10/3/2002	Marina	0 - 4	0	0.0		105	29,940	8.02	NS	7.90	0.15	0.00	0.00	0.00	0.48	4.72	94.80
LW03-SD206-00-02C	10/3/2002	Marina	0 - 4	0	0.0		83.6	33,360	7.98	NS	8.40	0.12	0.00	0.00	0.00	0.52	4.40	95.09
LW03-SD206P-00-02C	10/3/2002	Marina	0 - 4	0	0.0		80.1	28,560	7.89	NS	NS	NS	NS	NS	NS	NS	NS	NS
LW03-C2-SD301-0001	2/20/2007	Marina	0 - 4	0	0.0		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
LW03-C2-SD302-0001	2/20/2007	Marina	0 - 4	4	0 - 1		NS	65,200	NS	NS	NS	2.62	0.00	0.00	0.00	0.60	2.10	97.30
LW03-D-SD329-0001	2/22/2007	Offshore	0 - 4	4	3.0		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
LW03-D-SD330-0001	2/22/2007	Offshore	0 - 4	4	0 - 1		NS	39,300	NS	NS	NS	0.33	0.00	0.00	0.00	1.80	5.20	93.00
LW03-F2-SD303-0001	2/21/2007	Offshore	0 - 4	4	10		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
LW03-F2-SD305-0001	2/21/2007	Offshore	0 - 4	4	1.0		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
LW03-F2-SD306-0001	2/21/2007	Offshore	0 - 4	4	0 - 1		NS	28,100	NS	NS	NS	0.78	0.00	0.00	0.00	0.80	5.30	93.90
LW03-G-SD331-0001	2/23/2007	Offshore	0 - 4	4	0 - 1		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

TABLE D-6
2002 and 2007 Sediment Parameter Measurements
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

				Maximum		Depth of Petroleum		Total Organic										
				Depth of		Material or Odors	Ammonia	Carbon			CEC	SEM/AVS	Coarse	Fine	Coarse	Medium	Fine	Silt/
Sample	Date	Area	Depth (in)	ABM (in)	Percent ABM	(in)	(mg/kg)	(mg/kg)	pН	Redox	(meq/100g)	Ratio	gravel	gravel	sand	sand	sand	Clay
LW03-G-SD333-0001	2/23/2007	Offshore	0 - 4	4	0 - 1		NS	28,100	NS	NS	NS	0.39	0.00	0.00	0.00	0.30	2.20	97.50
LW03-G-SD333P-0001	2/23/2007	Offshore	0 - 4	4	0 - 1		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
LW03-H-SD307-0001	2/21/2007	Near Shore	0 - 4	4	97		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
LW03-H-SD307P-0001	2/21/2007	Near Shore	0 - 4	4	97		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
LW03-H-SD312-000.5	2/21/2007	Offshore	0 - 4	4	30		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
LW03-H-SD316-0001	2/21/2007	Offshore	0 - 4	4	0 - 1		NS	27,900	NS	NS	NS	0.51	0.00	0.00	0.00	1.00	6.70	92.30
LW03-I-SD317-0001	2/22/2007	Near Shore	0 - 4	4	95		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
LW03-I-SD319-0001	2/22/2007	Offshore	0 - 4	4	0 - 1		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
LW03-I-SD323-0001	2/22/2007	Offshore	0 - 4	4	3.0		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
LW03-I-SD326-0001	2/22/2007	Offshore	0 - 4	4	0 - 1		NS	32,800	NS	NS	NS	0.23	0.00	0.00	0.40	3.00	11.80	84.80
LW03-I-SD326P-0001	2/22/2007	Offshore	0 - 4	4	0 - 1		NS	25,800	NS	NS	NS	0.13	NS	NS	NS	NS	NS	NS
Subsurface Sediment																		
LW03-A-SD201-02-02C	10/3/2002	Near Shore	12 - 18	11	Present		2.43 U	235	8.32	NS	NS	NS	0.00	0.00	0.10	15.35	78.56	6.00
LW03-A-SD202-02-02C	10/4/2002	Offshore	20 - 26	19	Present		16.4	11,510	8.44	-309.2	NS	NS	0.00	0.00	0.55	4.98	28.11	66.35
LW03-B-SD201-02-02C	10/2/2002	Near Shore	16 - 22	39	15		2.40 U	974	8.73	-418.1	NS	NS	1.61	18.36	2.72	34.53	38.94	3.85
LW03-B-SD201P-02-02C	10/2/2002	Near Shore	16 - 22	39	15	-	2.39 U	1,457	8.64	NS	NS	NS	NS	NS	NS	NS	NS	NS
LW03-B-SD202-02-02C	10/3/2002	Offshore	47 - 53	47	Present	39 - 47	6.68	2,767	8.95	-86.8	NS	NS	0.00	0.00	0.09	8.94	39.68	51.29
LW03-C-SD201-02-02C	10/2/2002	Near Shore	14 - 20	13	95		2.41 U	725	8.26	-355.1	NS	NS	0.00	1.14	5.55	48.64	44.45	0.23
LW03-C-SD202-02-02C	10/2/2002	Offshore	11 - 17	10	Present		46.7	22,240	7.55	-395.2	NS	NS	0.00	0.00	0.00	0.77	6.30	92.93
LW03-C-SD202P-02-02C	10/2/2002	Offshore	11 - 17	10	Present		64.7	27,270	8.53	NS	NS	NS	NS	NS	NS	NS	NS	NS
LW03-C-SD202-03-02C	10/2/2002	Offshore	31 - 69			31 - 69	70.2	3,139	8.73	NS	NS	NS	NS	NS	NS	NS	NS	NS
LW03-D-SD201-02-02C	10/2/2002	Near Shore	16 - 21	25	Abundant (0-15") Present (to 25")		2.44 U	3,538	8.75	-221.4	NS	NS	0.00	1.41	1.97	43.07	42.27	11.28
LW03-D-SD202-02-02C	10/2/2002	Offshore	9 - 15	8	10		64.4	20,890	8.54	-426.2	NS	NS	0.00	0.00	0.00	0.30	3.01	96.69
LW03-D-SD202-03-02C	10/2/2002	Offshore	31 - 82			30 - 82	81.6	23,940	8.24	NS	NS	NS	NS	NS	NS	NS	NS	NS
LW03-E-SD201-02-02C	10/3/2002	Near Shore	15 - 21	14	100 (0-10") Present (to 14")	10 - 36	7.22	1,507	8.94	-371.5	NS	NS	0.00	0.03	0.45	18.63	51.84	29.04
LW03-E-SD202-02-02C	10/4/2002	Offshore	8 - 14	7	< 1.0		308	41,090	8.07	-315.2	NS	NS	0.00	0.00	0.00	0.69	6.59	92.72
LW03-E-SD202-03-02C	10/4/2002	Offshore	28 - 34			28 - 82	175	25,720	8.02	NS	NS	NS	NS	NS	NS	NS	NS	NS
LW03-E1-SD202-02-02C	10/4/2002	Offshore	6 - 12	0	0.0		128	32,040	8.43	NS	NS	NS	0.00	4.85	0.07	2.15	8.07	84.86
LW03-E1-SD202P-02-02C	10/4/2002	Offshore	6 - 12	0	0.0		209	28,460	8.40	NS	NS	NS	NS	NS	NS	NS	NS	NS
LW03-F-SD201-02-02C	10/4/2002	Near Shore	19 - 25	10	98		3.67	9,965	8.54	159.2	NS	NS	0.00	0.00	0.49	21.12	19.62	58.76
LW03-F-SD202-02-02C	10/4/2002	Offshore	8 - 14	8	Present	20 - 60	69.6	22,580	8.55	98.8	NS	NS	0.00	0.00	0.22	3.25	18.40	78.14
LW03-G-SD201-02-02C	10/4/2002	Near Shore	15 - 21	14	Present		185	34,020	8.38	-57.1	NS	NS	0.00	0.00	0.10	2.91	14.05	82.94
LW03-G-SD201-03-02C	10/4/2002	Near Shore	31 - 57			31 - 57	72.2	45,590	8.48	NS	NS	NS	NS	NS	NS	NS	NS	NS
LW03-G-SD202-02-02C	10/4/2002	Offshore	7 - 13	6	Present	24 - 45	47.5	24,560	8.42	40.8	NS	NS	NS	NS	NS	NS	NS	NS
LW03-SD201-02-02C	10/3/2002	Marina	19 - 21	19	Abundant (0-11") Present (to 19")		3.25	1,073	7.80	-143.8	NS	NS	0.00	0.43	0.83	29.42	54.33	14.99
LW03-SD204-02-02C	10/3/2002	Marina	11 - 20	10	Abundant		59.4	27,230	8.62	-383.6	NS	NS	0.00	0.00	0.00	7.52	46.41	46.07
LW03-SD204-03-02C	10/3/2002	Marina	52 - 63			51 - 63	29.1	9,539	8.57	NS	NS	NS	NS	NS	NS	NS	NS	NS
LW03-SD205-02-02C	10/3/2002	Marina	7 - 13	0	0.0		261	26,360	8.07	-391.1	NS	NS	0.00	0.00	0.00	0.65	3.65	95.70
LW03-SD205-03-02C	10/3/2002	Marina	53 - 63			53 - 63	158	19,070	8.00	NS	NS	NS	NS	NS	NS	NS	NS	NS
LW03-SD206-02-02C	10/3/2002	Marina	6 - 12	0	0.0		147	26,570	8.07	152.3	NS	NS	0.00	0.00	0.00	0.64	3.81	95.55
LW03-SD206-03-02C	10/3/2002	Marina	39 - 69			38 - 69	219	29,980	8.26	NS	NS	NS	NS	NS	NS	NS	NS	NS

TABLE D-6
2002 and 2007 Sediment Parameter Measurements
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

				Maximum		Depth of Petroleum		Total Organic			252	05144140						6UU.
Commite	Data	A	Daniella (!m)	Depth of	Danasant ADM	Material or Odors	Ammonia	Carbon	11	Dadan	CEC	SEM/AVS		Fine		Medium	_	Silt/
Sample	Date	Area	Depth (in)	ABM (in)	Percent ABM	(in)	(mg/kg)	(mg/kg)	рН	Redox	(meq/100g)	Ratio	gravel	gravel	sand	sand	sand	Clay
LW03-D-SD329-0405	2/22/2007	Offshore	48 - 52	48	0 - 1	28 - 48	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
LW03-F2-SD303-0203	2/21/2007	Offshore	24 - 28	24	10		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
LW03-H-SD307-0607	2/21/2007	Near Shore	72 - 76	88	50 (3-12") 25 (12-36") 35 (36-45") 15 (45-72") 1 (72-88")	36 - 88	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
LW03-H-SD312-0.501	2/21/2007	Offshore	4 - 8	33	1 - 30		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
LW03-I-SD317-0203	2/22/2007	Near Shore	26 - 30	26	95 (0-18") 30 (18-26")		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
LW03-I-SD319-0203	2/22/2007	Offshore	24 - 28	24	5 (4-24") <1 (24-92)	17 - 19	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
LW03-I-SD323-0102	2/22/2007	Offshore	15 - 19	85	3.0 (3-12") 1.0 (12-85")		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

NS - Not Sampled

-- = Data not available

TABLE D-7
2010 Sediment Parameter Measurements
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

	, ,	Beach, Virginia					Average						Grai	n Size (perc	ent)		
				Top Depth	Bottom	Percent	Redox Depth	Sediment	SEM/AVS	TOC	Large	Coarse	Fine	Coarse	Medium		T
Sample	Date	Area	Grid	(in)	Depth (in)	ABM	(mm)	рН	Ratio	(MG/KG)	Gravel	Gravel	Gravel	Sand	Sand	Fine Sand	Silt/ Clay
LW03-SD501-00-10C	9/2/2010	Near Shore	501	0	4	0.1	1.0	8.16	0.009	4,010	0.0	0.0	1.0	1.0	23.0	65.0	10.0
LW03-SD502-00-10C	9/2/2010	Near Shore	502	0	4	0.2	1.0	8.31	0.679	12,200	14.0	0.0	15.0	3.0	12.0	14.0	42.0
LW03-SD503-00-10C	9/2/2010	Near Shore	503	0	4	0.1	1.2	7.90	0.167	5,060	0.0	0.0	1.0	1.0	19.0	64.0	15.0
LW03-SD504-00-10C	8/31/2010	Near Shore	504	0	4	0.25	1.1	7.87	0.051	21,500	1.0	1.0	1.0	2.0	12.0	56.0	27.0
LW03-SD504A-00-10C	8/31/2010	Near Shore	504A	0	4	0.5	NV	7.14	0.041	29,300	0.0	0.0	2.0	1.0	3.0	39.0	55.0
LW03-SD505-00-10C	8/31/2010	Near Shore	505	0	4	1.0	4.8	7.85	0.013	5,520	0.0	0.0	0.0	1.0	11.0	65.0	23.0
LW03-SD506-00-10C	9/10/2010	Near Shore	506	0	4	2.0	8.1	8.07	0.053	1,810	0.0	3.0	0.0	2.0	42.0	45.0	8.0
LW03-SD507-00-10C	9/2/2010	Near Shore	507	0	4	0.05	0.87	7.80	2.774	2,260	0.0	0.0	0.0	1.0	22.0	68.0	9.0
LW03-SD508-00-10C	9/10/2010	Near Shore	508	0	4	0.5	2.6	7.83	0.013	23,400	0.0	0.0	1.0	0.0	17.0	59.0	23.0
LW03-SD509-00-10C	9/9/2010	Near Shore	509	0	4	20	0.5	8.60	0.111	6,020	0.0	7.0	13.0	2.0	34.0	34.0	10.0
LW03-SD510-00-10C	8/31/2010	Offshore	510	0	4	0.5	7.3	7.96	0.050	19,700	0.0	0.0	0.0	0.0	4.0	32.0	64.0
LW03-SD511-00-10C	8/31/2010	Offshore	511	0	4	0.8	5.9	7.31	0.025	11,500	0.0	0.0	0.0	0.0	13.0	58.0	29.0
LW03-SD512-00-10C	9/2/2010	Offshore	512	0	4	0.3	0.8	8.24	0.895	7,220	0.0	0.0	0.0	0.0	9.0	56.0	35.0
LW03-SD513-00-10C	9/10/2010	Marina	513	0	4	1.5	0.5	7.92	0.011	6,710	0.0	0.0	4.0	6.0	8.0	48.0	34.0
LW03-SD514-00-10C	9/10/2010	Marina	514	0	4	1.2	0.5	8.03	0.007	17,500	0.0	0.0	1.0	1.0	5.0	42.0	51.0
LW03-SD515-00-10C	9/9/2010	Marina	515	0	4	5.0	7.3	7.95	0.013	23,200	0.0	0.0	0.0	4.0	16.0	61.0	19.0
LW03-SD516-00-10C	9/9/2010	Near Shore	516	0	4	50	NV	8.20	1.105	2,180	0.0	0.0	5.0	2.0	48.0	41.0	4.0
LW03-SD517-00-10C	8/31/2010	Offshore	517	0	4	0.25	2.0	7.97	0.038	36,700	0.0	0.0	0.0	0.0	1.0	11.0	88.0
LW03-SD518-00-10C	8/31/2010	Offshore	518	0	4	0.2	3.8	8.11	0.010	32,400	0.0	0.0	0.0	0.0	1.0	13.0	86.0
LW03-SD519-00-10C	9/2/2010	Marina	519	0	4	0.4	0.75	8.24	0.225	19,700	0.0	0.0	0.0	0.0	8.0	33.0	59.0
LW03-SD520-00-10C	9/10/2010	Marina	520	0	4	1.5	0.5	7.58	0.001	30,000	8.0	0.0	6.0	10.0	10.0	17.0	49.0
LW03-SD521-00-10C	9/12/2010	Marina	521	0	4	5.0	NV	8.21	0.015	26,900	0.0	0.0	0.0	5.0	7.0	28.0	60.0
LW03-SD522-00-10C	9/9/2010	Marina	522	0	4	9.0	5.3	7.78	0.029	8,130	0.0	0.0	0.0	0.0	17.0	60.0	23.0
LW03-SD523-00-10C	9/9/2010	Near Shore	523	0	4	35	0.5	8.83	0.013	5,770	12.0	0.0	13.0	3.0	36.0	29.0	7.0
LW03-SD525-00-10C	9/2/2010	Marina	525	0	4	0.6	NV	8.14	0.454	35,500	0.0	0.0	0.0	0.0	9.0	22.0	69.0
LW03-SD526-00-10C	9/10/2010	Marina	526	0	4	0.01	NV	8.01	0.002	35,300	0.0	0.0	0.0	0.0	1.0	6.0	93.0
LW03-SD527-00-10C	9/12/2010	Marina	527	0	4	2.0	1.5	8.16	0.008	28,700	0.0	0.0	1.0	8.0	3.0	9.0	79.0
LW03-SD528-00-10C	9/9/2010	Offshore	528	0	4	No data	1.5	7.72	0.004	16,500	0.0	0.0	0.0	1.0	8.0	44.0	47.0
LW03-SD529-00-10C	9/9/2010	Near Shore	529	0	4	15	1.1	8.93	0.051	4,860	0.0	0.0	3.0	5.0	31.0	52.0	9.0
LW03-SD530-00-10C	9/2/2010	Marina	530	0	4	0.6	NV	6.98	0.122	44,300	0.0	0.0	0.0	0.0	13.0	21.0	66.0
LW03-SD533-00-10C	9/1/2010	Offshore	533	0	4	5.0	2.5	8.20	0.002	23,300	0.0	0.0	0.0	1.0	14.0	36.0	49.0
LW03-SD534-00-10C	9/1/2010	Near Shore	534	0	4	4.0	NV	8.04	0.002	24,900	0.0	0.0	6.0	3.0	33.0	31.0	27.0
LW03-SD535-00-10C	9/1/2010	Near Shore	535	0	4	20	NV	8.22	0.012	39,000	0.0	1.0	4.0	2.0	25.0	22.0	46.0
LW03-SD537-00-10C	9/1/2010	Offshore	537	0	4	3.0	7.0	8.66	0.017	19,700	0.0	0.0	0.0	0.0	3.0	8.0	89.0
LW03-SD538-00-10C	9/1/2010	Dry Dock	538	0	4	1.0	NV	7.94	0.002	45,300	0.0	0.0	0.0	1.0	2.0	9.0	88.0
LW03-SD539-00-10C	9/1/2010	Dry Dock	539	0	4	0.5	1.5	7.09	0.005	34,600	0.0	0.0	0.0	0.0	7.0	20.0	73.0
LW03-SD540-00-10C	9/1/2010	Offshore	540	0	4	4.0	NV	8.13	0.010	18,800	0.0	0.0	0.0	0.0	19.0	37.0	44.0
LW03-SD541-00-10C	9/7/2010	Near Shore	541	0	4	15	NV	8.70	0.144	42,800	0.0	0.0	5.0	3.0	24.0	30.0	38.0
LW03-SD543-00-10C	9/1/2010	Offshore	543	0	4	1.5	NV	8.30	0.051	29,100	0.0	0.0	0.0	0.0	1.0	5.0	94.0
LW03-SD544-00-10C	9/1/2010	Dry Dock	544	0	4	0.5	NV	8.02	0.002	38,800	0.0	0.0	0.0	0.0	0.0	5.0	95.0
LW03-SD545-00-10C	9/1/2010	Offshore	545	0	4	2.0	NV	8.59	0.002	24,300	0.0	0.0	0.0	0.0	2.0	7.0	91.0
LW03-SD546-00-10C	9/1/2010	Offshore	546	0	4	3.0	NV	8.37	0.004	23,000	0.0	0.0	0.0	0.0	4.0	6.0	90.0
LW03-SD547-00-10C	9/7/2010	Near Shore	547	0	4	22	NV	8.78	0.100	22,100	0.0	0.0	3.0	3.0	39.0	22.0	33.0
LW03-SD548-00-10C	9/9/2010	Offshore	548	0	1	0	NV	8.89	0.002	36,000	0.0	0.0	0.0	0.0	2.0	16.0	82.0
LW03-SD549-00-10C	9/9/2010	Offshore	549	0	Л	0.01	NV	7.96	0.002	22,700	0.0	0.0	0.0	0.0	4.0	20.0	76.0

TABLE D-7
2010 Sediment Parameter Measurements
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

							Average						Grai	n Size (perce	ent)		
				Top Depth	Bottom	Percent	Redox Depth	Sediment	SEM/AVS	TOC	Large	Coarse	Fine	Coarse	Medium		
Sample	Date	Area	Grid	(in)	Depth (in)	ABM	(mm)	рН	Ratio	(MG/KG)	Gravel	Gravel	Gravel	Sand	Sand	Fine Sand	Silt/ Clay
LW03-SD550-00-10C	9/8/2010	Offshore	550	0	4	No data	NV	8.60	0.011	33,200	0.0	0.0	0.0	0.0	14.0	33.0	53.0
LW03-SD551-00-10C	9/8/2010	Offshore	551	0	4	0.3	1.0	8.94	0.018	25,800	0.0	0.0	0.0	0.0	6.0	25.0	69.0
LW03-SD552-00-10C	9/7/2010	Offshore	552	0	4	0.03	NV	8.77	0.010	37,600	0.0	0.0	0.0	0.0	2.0	10.0	88.0
LW03-SD553-00-10C	9/7/2010	Near Shore	553	0	4	30	NV	8.90	0.009	43,200	15.0	3.0	5.0	4.0	32.0	24.0	17.0
LW03-SD555-00-10C	9/9/2010	Offshore	555	0	4	< 0.001	NV	8.21	0.007	32,300	0.0	0.0	0.0	0.0	10.0	17.0	73.0
LW03-SD556-00-10C	9/8/2010	Offshore	556	0	4	0.02	NV	8.65	0.011	24,400	0.0	0.0	0.0	0.0	10.0	14.0	76.0
LW03-SD557-00-10C	9/8/2010	Offshore	557	0	4	0.03	NV	8.41	0.005	36,700	0.0	0.0	0.0	0.0	4.0	19.0	77.0
LW03-SD558-00-10C	9/8/2010	Offshore	558	0	4	0.4	NV	8.72	0.012	33,900	0.0	0.0	0.0	1.0	6.0	6.0	87.0
LW03-SD559-00-10C	9/7/2010	Near Shore	559	0	4	18	NV	8.86	0.004	25,900	0.0	0.0	0.0	0.0	9.0	35.0	56.0
LW03-SD562-00-10C	9/8/2010	Offshore	562	0	4	0.01	NV	8.80	0.002	38,100	0.0	0.0	0.0	0.0	1.0	4.0	95.0
LW03-SD563-00-10C	9/8/2010	Offshore	563	0	4	0.02	1.0	8.86	0.003	28,900	0.0	0.0	0.0	0.0	2.0	10.0	88.0
LW03-SD564-00-10C	9/8/2010	Offshore	564	0	4	0.05	NV	8.58	0.005	29,800	0.0	0.0	0.0	0.0	2.0	7.0	91.0
LW03-SD567-00-10C	9/8/2010	Offshore	567	0	4	0.02	0.5	8.03	0.002	27,600	0.0	0.0	0.0	0.0	2.0	8.0	90.0
LW03-SD571-00-10C	9/8/2010	Offshore	571	0	4	0.05	NV	8.61	0.003	23,600	0.0	0.0	0.0	0.0	2.0	13.0	85.0
LW03-SD574-00-10C	8/31/2010	Offshore	574	0	4	0.25	1.5	7.59	0.048	35,000	0.0	0.0	0.0	0.0	1.0	13.0	86.0

NV - Not Visible

TABLE D-8
2002 Benthic Invertebrate Sampling Results
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

		Pollution	C-203	D-201	205	
Group	Species	Sensitivity <sup>1</sup>	(Grid 527)	(Grid 529)	(Grid 526)	Total
Bivalvia	Mercenaria mercenaria (Linnaeus)	PS, EQ	0	1	0	1
Gastropoda	Nassarius vibex Say		0	3	0	3
Polychaeta	Capitella capitata (Fabricius)	PI, OP	1	0	0	1
	Total Organisms		1	4	0	5
	Total Density (Number per Square Meter)		19.1	76.5	0.0	
	Number of Taxa		1	2	0	3
	Percent Dominant Taxa		100	75.0		

- 1 Pollution sensitivity rankings:
  - EQ Equilibrium (large deep dwelling and long lived taxa that tend to dominate unstressed habitats; generally correlates to pollution-sensitive)
  - OP Opportunistic (relatively stress tolerant, short lived taxa with an ability to rapidly colonize stressed habitats; generally correlates to pollution-indicative)
  - PI Pollution Indicative (relatively stress tolerant, short lived taxa; based on correlations of taxa with sediment contaminants and dissolved oxygen)
  - PS Pollution Sensitive (large deep dwelling and long lived taxa; based on correlations of taxa with sediment contaminants and dissolved oxygen) Not all taxa have available ratings

## TABLE D-9 2010 Benthic Invertebrate Sampling Results SWMU 3 Benthic Invertebrate Evaluation Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

			N, Vilgilia Dodoli, Vilgilia		LW03-SD501	LW03-SD502	LW03-SD503	LW03-SD504	LW03-SD504A	LW03-SD505	LW03-SD506	LW03-SD507
<b> </b>			_	Pollution	LW03-SD501-00-10C	LW03-SD502-00-10C	LW03-SD503-00-10C	LW03-SD504-00-10C	LW03-SD504A-00-10C	LW03-SD505-00-10C	LW03-SD506-00-10C	LW03-SD507-00-10C
Phylum	Class	Order	Taxon	Classification <sup>1</sup>	Near Shore	Near Shore	Near Shore	Near Shore	Near Shore	Near Shore	Near Shore	Near Shore
				Olassinoation	09/02/2010	09/02/2010	09/02/2010	08/30/2010	08/31/2010	08/31/2010	09/10/2010	09/02/2010
Porifera					07/02/2010	07/02/2010	07/02/2010	00/00/2010	00/01/2010	00/01/2010	07/10/2010	07/02/2010
Tornera			Porifera (LPIL)		0	0	0	0	0	1	0	0
Cnidaria			Folliela (LFIL)		U	U	U	U	U	ı	U	U
Cilidaria	Hydrozo											
	TiyuTOZO	а	Hydrozoa (LPIL)		0	0	0	0	0	0	0	0
	Anthozo		Hydrozoa (LPTL)		U	U	U	U	U	U	U	U
<u> </u>	Anthozo	а	Actiniaria (LPIL)		0	1	0	0	0	0	2	2
	+		Actiniaria (LFIL) Actiniaria sp. A		0	0	0	0	0	0	0	0
					0	0	0		0	0	0	
Nemertea			Anthozoa (LPIL)		U	U	U	0	U	U	U	0
Nemertea			Namartaa /I DII )		2	0	1	0	0	0	0	3
Annalida			Nemertea (LPIL)		Z	U	ļ ļ	U	U	U	0	3
Annelida	Dolugha	oto										
<b> </b>	Polycha	tid	Darvillas (Schictamoringas) rudalahi		0	0	0	0	^	0	0	0
<b> </b>			Dorvillea (Schistomeringos) rudolphi		0	0	0	0	0	0	0	0
			Marphysa sanguinea		Ŭ	0	0	0	0	0	0	0
			Glycera dibranchiata		0	0	0	0	0	0	1	0
			Ophioglycera sp.	DC 0D	l	0	0	0	0	0	0	0
			Glycinde solitaria	PS, OP	2	1	0	0	1	0	1	1
			Gyptis crypta		0	0	0	0	0	0	2	0
			Hesionidae (LPIL)		0	0	0	0	0	0	0	0
			Podarke obscura		1	0	0	0	1	0	1	0
			Laeonereis culveri		0	0	0	0	0	0	0	0
			Neanthes succinea	PI, OP	0	0	0	0	0	0	0	0
			Nereididae (LPIL)		6	1	0	0	0	0	1	1
			Platynereis dumerilii		0	0	0	0	0	0	0	0
			Diopatra cuprea	PS, EQ	0	0	0	0	0	0	0	0
			Phyllodoce mucosa		0	0	0	0	0	0	0	0
			Phyllodocidae (LPIL)		0	0	0	0	0	0	0	0
			Syllidae (LPIL)		0	0	0	0	0	0	0	1
			Ampharetidae (LPIL)		1	0	0	0	0	0	0	0
			Spiochaetopterus costarum	PS	2	2	0	0	2	1	4	1
			Aphelochaeta sp.		0	5	1	0	0	0	0	5
			Cirratulidae (LPIL)		1	0	0	0	0	0	7	0
			Tharyx sp.		0	0	0	0	0	0	3	0
			Pectinaria gouldii		0	0	0	0	0	0	0	0
			Pectinaria sp.		0	0	0	0	0	0	1	0
			Demonax microphthalmus		0	4	0	0	0	0	0	0
			Sabellidae (LPIL)		0	1	0	0	0	0	0	0
			Sabellinae (LPIL)		0	0	0	0	0	0	0	0
			Hydroides dianthus		0	0	0	0	0	0	3	0
			Hydroides diathus		0	0	0	0	0	0	0	0
			Hydroides sp.		0	0	0	0	1	0	0	0
			Serpulidae (LPIL)		0	1	0	0	0	0	0	0
			Dipolydora cauleri		0	0	0	0	0	0	0	0

TABLE D-9
2010 Benthic Invertebrate Sampling Results
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

					LW03-SD501	LW03-SD502	LW03-SD503	LW03-SD504	LW03-SD504A	LW03-SD505	LW03-SD506	LW03-SD507
Dhadaa	Class	Ouden	Tavan	Pollution	LW03-SD501-00-10C	LW03-SD502-00-10C	LW03-SD503-00-10C	LW03-SD504-00-10C	LW03-SD504A-00-10C	LW03-SD505-00-10C	LW03-SD506-00-10C	LW03-SD507-00-100
Phylum	Class	Order	Taxon	Classification <sup>1</sup>	Near Shore	Near Shore	Near Shore	Near Shore	Near Shore	Near Shore	Near Shore	Near Shore
					09/02/2010	09/02/2010	09/02/2010	08/30/2010	08/31/2010	08/31/2010	09/10/2010	09/02/2010
			Marenzelleria viridis	PS	0	0	0	0	0	0	0	0
			Paraprionospio pinnata	PI, OP	0	0	0	0	0	4	1	0
			Polydora cornuta	PI, OP	0	0	0	0	0	0	0	0
			Pseudopolydora sp.		0	0	0	0	0	0	0	0
			Scolelepis texana		0	0	0	0	0	0	0	0
			Spio sp.		0	0	3	0	0	0	0	0
			Spionidae (LPIL)		0	0	0	0	0	0	0	0
			Streblospio benedicti	PI, OP	1	0	1	0	2	1	0	2
			Loimia medusa	PS	0	0	0	0	0	0	0	0
			Loimia sp.		0	0	1	0	0	0	0	0
			Pista cristata		0	0	0	0	0	0	0	0
			Terebellidae (LPIL)		0	2	0	0	0	0	0	0
			Capitella capitata complex Blake	PI, OP	7	0	3	0	1	1	2	0
			Capitella jonesi	PI, OP	0	0	0	0	0	0	0	0
			Capitella sp.	PI, OP	0	1	0	0	0	0	0	0
			Capitellidae (LPIL)	, .	0	0	0	0	0	0	0	0
			Heteromastus filiformis	PI, OP	0	2	0	1	0	0	0	0
			Mediomastus ambiseta	PS, PI, OP	5	0	2	0	4	1	5	3
			Mediomastus californiensis	. 5/1.//	0	0	0	0	0	0	0	0
			Mediomastus sp.		1	4	1	0	1	0	6	1
			Orbiniidae (LPIL)		0	0	0	0	0	0	0	0
			Scoloplos rubra		0	0	0	0	0	0	0	0
			Clymenella torquata	PS, EQ	0	0	0	0	0	0	0	0
	Clitellat	а	.,			-	-		-	-	-	·
			Paranais frici		0	0	0	0	0	0	0	0
			Tubificoides sp.		0	0	0	0	0	0	0	0
Arthropoda						-	-		-	-	-	-
	Malacos	straca										
		Amphipo	oda									
			Aoridae (LPIL)		0	0	0	0	0	0	0	0
			Monocorophium acherusicum		0	0	0	0	0	0	0	0
			Monocorophium insidiosum		0	0	0	0	0	0	0	0
			Monocorophium sp.		0	0	0	0	0	0	0	0
			Listriella clymenellae	PS	0	0	0	0	0	0	0	0
		Cumacea	a									
			Cumacea (LPIL)		0	0	0	0	0	0	1	0
		Decapoo										
		-	Palaemonetes sp.		0	0	0	0	0	0	0	0
			Panopeidae (LPIL)		0	0	0	0	0	0	0	0
			Panopeus herbstii		0	0	0	0	0	0	0	0
			Rhithropanopeus harrisii		0	0	0	0	0	0	0	0
			Pinnixa sp.		0	0	0	0	0	0	0	0
			Callinectes sp.		0	0	0	0	0	0	0	0
			Portunidae (LPIL)		0	0	0	0	0	0	0	0

TABLE D-9
2010 Benthic Invertebrate Sampling Results
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

					LW03-SD501	LW03-SD502	LW03-SD503	LW03-SD504	LW03-SD504A	LW03-SD505	LW03-SD506	LW03-SD507
<b>.</b>			_	Pollution	LW03-SD501-00-10C	LW03-SD502-00-10C	LW03-SD503-00-10C	LW03-SD504-00-10C	LW03-SD504A-00-10C	LW03-SD505-00-10C	LW03-SD506-00-10C	LW03-SD507-00-10C
Phylum	Class	Order	Taxon	Classification <sup>1</sup>	Near Shore	Near Shore	Near Shore	Near Shore	Near Shore	Near Shore	Near Shore	Near Shore
				Glassification	09/02/2010	09/02/2010	09/02/2010	08/30/2010	08/31/2010	08/31/2010	09/10/2010	09/02/2010
			Decapoda (LPIL)		0	0	0	0	0	0	0	0
			Decapoda zoea (larva)		0	0	0	0	0	0	0	0
		Leptostr			, , ,	, , ,	, , ,		Ů			,
			Leptostraca (LPIL)		0	0	0	0	0	0	0	0
		Mysida	Lopiosituca (El 12)			,	,	0	Ŭ	·		Ů
		myoraa	Americamysis sp.		0	0	0	0	0	0	Λ	0
			Mysidae (LPIL)		0	0	0	0	0	0	0	1
			Neomysis americana		0	0	0	0	0	0	0	0
		Stomato			U	U	0	U	U	U	U	U
		Stomato	Squilla empusa	PS, EQ	0	0	0	0	0	0	0	0
	Maxillop	nodo.	Squilla empusa	F3, EQ	U	U	U	U	U	U	U	U
	IVIAXIIIO	Sessilia										
		Sessina			^	^	^	0	0	0	^	0
			Balanus improvisus Balanomorpha (LPIL)		0	0 2	0	0	0	0	0	0
	F (		Baianomorpna (LPIL)		I	2	0	0	0	0	U	0
	Entogna	atna	Oallandada (LDIII)		0	0	0	0	0		0	0
		· · ·	Collembola (LPIL)		0	0	0	0	0	0	0	0
	Unspeci	ified	0 (1 (1 (1 (1 (1 (1 (1 (1 (1 (1 (1 (1 (1									
			Crustacea (LPIL)		0	0	0	0	0	0	0	0
Mollusca												
	Gastrop	oda										
			Acteocina canaliculata	PS	1	0	0	0	0	0	1	0
			Acteocina sp.		0	0	0	0	0	0	0	1
			Odostomia engonia		0	1	0	0	0	0	0	0
			Turbonilla interrupta		0	0	0	0	0	0	1	0
			Astyris lunata		0	0	1	0	0	0	0	0
			Nassarius vibex		0	0	0	0	0	0	0	1
			Pyrgocythara plicosa		0	1	0	0	0	0	4	0
			Crepidula fornicata		8	5	0	0	0	0	17	0
			Crepidula plana		2	0	0	0	0	0	0	0
			Cerithiopsis greenii		0	1	0	0	0	0	0	0
			Epitonium rupicola		0	1	0	0	0	0	0	0
			Gastropoda (LPIL)		0	1	0	0	0	0	0	1
	Bivalvia											
			Anadara transversa	PS, EQ	0	0	0	0	0	0	1	0
			Amygdalum papyrium		1	0	1	0	0	0	0	0
			Anomia simplex		0	0	0	0	0	0	0	0
			Pododesmus rudis		0	0	0	0	0	0	0	0
			Crassostrea virginica		0	0	0	0	0	0	0	0
			Mulinia lateralis	OP	1	2	0	0	0	0	0	0
			Tagelus sp.	PS, EQ?	0	0	0	0	0	0	0	0
			Macoma tenta	,	2	0	0	0	0	0	0	0
			Tellinidae (LPIL)		0	0	0	0	0	0	0	0
			Gemma gemma	OP	6	5	2	0	0	1	4	2
			Mercenaria mercenaria	PS, EQ	0	0	0	2	0	0	0	0

TABLE D-9 2010 Benthic Invertebrate Sampling Results SWMU 3 Benthic Invertebrate Evaluation Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

					LW03-SD501	LW03-SD502	LW03-SD503	LW03-SD504	LW03-SD504A	LW03-SD505	LW03-SD506	LW03-SD507
Phylum	Class	Order	Taxon	Pollution	LW03-SD501-00-10C	LW03-SD502-00-10C	LW03-SD503-00-10C	LW03-SD504-00-10C	LW03-SD504A-00-10C	LW03-SD505-00-10C	LW03-SD506-00-10C	LW03-SD507-00-10C
Pilylulli	Class	Order	Taxon	Classification <sup>1</sup>	Near Shore	Near Shore	Near Shore	Near Shore	Near Shore	Near Shore	Near Shore	Near Shore
					09/02/2010	09/02/2010	09/02/2010	08/30/2010	08/31/2010	08/31/2010	09/10/2010	09/02/2010
			Veneridae (LPIL)		1	3	3	0	0	1	12	0
			Bivalvia (LPIL)		0	0	0	0	0	0	0	3
Phoronida												
			Phoronida (LPIL)		7	6	3	0	0	8	26	12
Chordata												
			Branchiostoma sp.		0	0	0	0	0	0	0	2
			Total Organisms		60	53	23	3	13	19	107	43
			Taxa Richness (Number of Taxa)		22	23	13	2	8	9	24	18
			Total Density (Number per Square Meter)		862	761	330	43	187	273	1,537	618
			Percent Contribution of Dominant Taxon		13.3	11.3	13.0	66.7	30.8	42.1	24.3	27.9
			Density (No./Square Meter) Dominant Taxon		115	86	43	29	57	115	374	172
			Percent Spionid Polychaetes		1.67	0.00	17.4	0.00	15.4	26.3	0.93	4.65
			Percent Mediomastus and Capitella Polychaetes		21.7	13.2	26.1	33.3	46.2	10.5	12.1	9.30
			Density of Pollution Tolerant Organisms		187	43	86	14	101	101	115	72
			Percent Pollution Tolerant Organisms		21.7	5.66	26.1	33.3	53.8	36.8	7.48	11.6
			Density of Pollution Sensitive Organisms		72	43	0	29	43	14	101	29
			Percent Pollution Sensitive Organisms		8.33	5.66	0.00	66.7	23.1	5.26	6.54	4.65
			Ratio Pollution Sensitive/ Pollution Tolerant		0.38	1.00	0.00	2.00	0.43	0.14	0.88	0.40
			Shannon Diversity Index (Base e)		2.76	2.91	2.44	0.64	1.93	1.78	2.59	2.52
			Shannon Diversity Index (Base 2)		3.98	4.20	3.52	0.92	2.78	2.56	3.74	3.64
			Percent Amphipods		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Percent Bivalves		18.3	18.9	26.1	66.7	0.00	10.5	15.9	11.6
			Percent Deposit Feeders		32.5	17.9	30.4	33.3	61.5	26.3	25.2	14.0

<sup>1 -</sup> Pollution classifications:

PS = Pollution Sensitive (Weisberg et al, 1997)
PI = Polution Indicator (Weisberg et al. 1997)
OP = Opportunistic (Ranasinghe et al. 1994)
EQ = Equlibrium (Ranasinghe et al. 1994)
? = Uncertanty due to taxonomic identification level

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2010 Benthic Invertebrate Sampling Results
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

ZONIK EMPOUI			ek, Virginia Beach, Virginia T		LWO3 CDEO0	TWOS CDEVO	LWO2 CDE10	LWO2 CDE11	LWO2 CDE12	LWO2 CDE12	I MO2 CDE1/	I MO2 CDE1E
				Pollution	LW03-SD508	LW03-SD509	LW03-SD510	LW03-SD511	LW03-SD512	LW03-SD513	LW03-SD514	LW03-SD515
Phylum	Class	Order	Taxon		LW03-SD508-00-10C	LW03-SD509-00-10C	LW03-SD510-00-10C	LW03-SD511-00-10C	LW03-SD512-00-10C	LW03-SD513-00-10C	LW03-SD514-00-10C	LW03-SD515-00-10C
·				Classification <sup>1</sup>	Near Shore	Near Shore	Offshore	Offshore	Offshore	Marina	Marina	Marina
				<u> </u>	09/10/2010	09/09/2010	08/31/2010	08/31/2010	09/02/2010	09/10/2010	09/10/2010	09/09/2010
Porifera												
			Porifera (LPIL)		0	0	0	0	0	0	0	0
Cnidaria												
	Hydrozo	oa										
			Hydrozoa (LPIL)		0	0	0	0	0	0	0	0
	Anthozo	oa										
			Actiniaria (LPIL)		0	1	0	0	0	0	0	0
			Actiniaria sp. A		0	0	0	0	0	0	0	0
			Anthozoa (LPIL)		0	0	0	0	0	0	0	0
Nemertea												
			Nemertea (LPIL)		0	0	0	1	0	0	0	2
Annelida												
	Polycha	eta										
			Dorvillea (Schistomeringos) rudolphi		0	0	0	0	0	0	0	0
			Marphysa sanguinea		0	0	0	0	0	0	0	0
			Glycera dibranchiata		0	0	0	0	0	0	0	0
			Ophioglycera sp.		0	0	0	0	0	0	0	0
			Glycinde solitaria	PS, OP	1	0	0	2	1	0	0	3
			Gyptis crypta	·	0	0	0	0	0	0	0	0
			Hesionidae (LPIL)		0	0	0	0	0	0	0	0
			Podarke obscura		0	1	0	0	0	0	1	1
			Laeonereis culveri		0	0	0	0	0	0	0	0
			Neanthes succinea	PI, OP	1	2	0	0	0	1	0	0
			Nereididae (LPIL)		0	0	0	0	1	0	0	0
			Platynereis dumerilii		0	1	0	0	0	0	0	1
			Diopatra cuprea	PS, EQ	0	0	0	0	0	0	0	0
			Phyllodoce mucosa	. 3/ 22	0	0	0	0	0	0	0	0
			Phyllodocidae (LPIL)		0	0	0	0	0	0	0	0
			Syllidae (LPIL)		0	0	0	0	0	0	0	0
			Ampharetidae (LPIL)		0	0	0	0	0	0	0	0
			Spiochaetopterus costarum	PS	1	0	1	5	0	0	2	1
			Aphelochaeta sp.	. 0	0	0	0	0	0	0	0	0
			Cirratulidae (LPIL)		0	0	1	1	0	0	0	1
			Tharyx sp.		0	0	2	0	0	0	0	0
			Pectinaria gouldii	<u> </u>	0	0	0	1	0	0	0	0
			Pectinaria sp.		0	0	0	0	0	0	0	0
			Demonax microphthalmus		0	0	0	0	0	0	0	0
			Sabellidae (LPIL)		0	0	1	0	0	0	0	0
			Sabellinae (LPIL)		0	0	0	0	1	0	0	0
			Hydroides dianthus		0	0	0	0	0	0	0	0
			Hydroides diathus		0	0	0	0	0	0	0	0
			Hydroides sp.		0	0	0	0	0	0	0	0
			Serpulidae (LPIL)		0	0	0	0	0	0	1	0
			Dipolydora cauleri		0	0	0	0	0	0	0	0
			Dipolydora cadlen		U	U	U	U	U	U	U	l U

TABLE D-9
2010 Benthic Invertebrate Sampling Results
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

, i			ek, virginia Beach, virginia		LW03-SD508	LW03-SD509	LW03-SD510	LW03-SD511	LW03-SD512	LW03-SD513	LW03-SD514	LW03-SD515
				Pollution		LW03-SD509-00-10C	LW03-SD510-00-10C	LW03-SD511-00-10C	LW03-SD512-00-10C	LW03-SD513-00-10C	LW03-SD514-00-10C	LW03-SD515-00-10C
Phylum	Class	Order	Taxon	Classification <sup>1</sup>	Near Shore	Near Shore	Offshore	Offshore	Offshore	Marina	Marina	Marina
				Classification	09/10/2010	09/09/2010	08/31/2010	08/31/2010	09/02/2010	09/10/2010	09/10/2010	09/09/2010
			Marenzelleria viridis	PS	0	1	0	0	0	0	0	1
			Paraprionospio pinnata	PI, OP	0	0	8	10	4	0	0	2
			Polydora cornuta	PI, OP	2	0	0	2	0	1	0	1
			Pseudopolydora sp.	, .	0	0	0	0	1	0	0	0
			Scolelepis texana		0	0	0	0	0	0	0	0
			Spio sp.		0	0	0	0	0	0	0	0
			Spionidae (LPIL)		0	0	0	0	0	0	0	0
			Streblospio benedicti	PI, OP	9	1	5	0	1	0	4	5
			Loimia medusa	PS	0	0	0	0	0	0	0	0
			Loimia sp.		0	0	1	0	0	3	0	0
			Pista cristata		0	0	0	0	0	0	0	0
			Terebellidae (LPIL)		0	0	0	0	0	0	0	0
			Capitella capitata complex Blake	PI, OP	14	11	0	0	0	15	5	2
			Capitella jonesi	PI, OP	1	0	0	0	0	0	0	0
			Capitella sp.	PI, OP	0	0	0	0	0	0	0	0
			Capitellidae (LPIL)		0	0	0	0	0	0	0	0
			Heteromastus filiformis	PI, OP	1	0	0	0	0	0	0	0
			Mediomastus ambiseta	PS, PI, OP	0	0	2	0	0	0	0	0
			Mediomastus californiensis		0	0	0	0	0	0	0	0
			Mediomastus sp.		1	0	0	0	0	0	0	0
			Orbiniidae (LPIL)		0	0	0	0	0	0	0	0
			Scoloplos rubra		0	0	0	0	0	0	0	0
			Clymenella torquata	PS, EQ	0	0	0	0	0	0	0	0
	Clitellat	a										
			Paranais frici		0	0	0	0	0	0	0	0
			Tubificoides sp.		0	0	0	0	0	0	0	0
Arthropoda												
	Malacos											
		Amphipo										
			Aoridae (LPIL)		0	0	0	0	0	0	0	1
			Monocorophium acherusicum		0	0	0	0	0	0	0	0
			Monocorophium insidiosum		0	0	0	0	0	0	0	0
			Monocorophium sp.		0	0	0	0	0	0	0	0
			Listriella clymenellae	PS	0	0	0	0	0	0	0	0
		Cumace										
		D :	Cumacea (LPIL)		0	0	0	0	0	0	0	0
		Decapoo			^	^	0	0				_
			Palaemonetes sp.		0	0	0	0	0	0	0	0
			Panopeidae (LPIL)		0	0	0	0	0	0	0	0
			Panopeus herbstii		0	0	0	0	0	0	0	0
			Rhithropanopeus harrisii		0	0	0	0	0	0	0	0
			Pinnixa sp.		0	0	0	0	0	0	0	0
			Callinectes sp.		Ŭ	0	0	0	0	0	0	0
			Portunidae (LPIL)		0	0	0	U U	0	<u>U</u>	U	0

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2010 Benthic Invertebrate Sampling Results
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

, , , , , , , , , , , , , , , , , , ,	ĺ		r, viigiilia beacii, viigiilia		LW03-SD508	LW03-SD509	LW03-SD510	LW03-SD511	LW03-SD512	LW03-SD513	LW03-SD514	LW03-SD515
				Pollution	LW03-SD508-00-10C	LW03-SD509-00-10C	LW03-SD510-00-10C	LW03-SD511-00-10C	LW03-SD512-00-10C	LW03-SD513-00-10C	LW03-SD514-00-10C	LW03-SD515-00-10C
Phylum	Class	Order	Taxon	Classification <sup>1</sup>	Near Shore	Near Shore	Offshore	Offshore	Offshore	Marina	Marina	Marina
				Ciassilication	09/10/2010	09/09/2010	08/31/2010	08/31/2010	09/02/2010	09/10/2010	09/10/2010	09/09/2010
	<u> </u>		Decapoda (LPIL)		07/10/2010	0/10/12010	00/31/2010	00/3/1/2010	0	0	0	0
			Decapoda (LPIL)  Decapoda zoea (larva)		0	0	0	0	0	0	0	0
		Lantastu	1 , ,		U	U	U	U	U	U	U	U
		Leptostr			0	0	0	0	0	0	0	0
		Maradala	Leptostraca (LPIL)		0	0	U	U	U	0	0	0
		Mysida	Americanos ele an		0	0	0	0	0	0	0	0
			Americamysis sp.		0	0	O .	0	0	0	0	0
			Mysidae (LPIL)		0	0	0	0	0	0	0	0
		0, ,	Neomysis americana		0	0	0	0	0	0	0	0
		Stomato		D0 F0		^			0			2
			Squilla empusa	PS, EQ	0	0	0	0	0	0	0	0
	Maxillop											
		Sessilia							_			_
			Balanus improvisus		0	4	0	0	0	0	0	0
			Balanomorpha (LPIL)		0	0	0	0	0	0	0	0
	Entogna	atha										
			Collembola (LPIL)		0	0	0	0	0	0	0	0
	Unspec	ified										
			Crustacea (LPIL)		0	0	0	0	0	0	0	0
Mollusca												
	Gastrop	oda										
			Acteocina canaliculata	PS	0	0	0	7	0	0	0	0
			Acteocina sp.		0	0	0	0	0	0	0	0
			Odostomia engonia		0	0	0	1	0	0	0	0
			Turbonilla interrupta		0	0	0	0	0	0	0	0
			Astyris lunata		0	0	0	0	0	0	0	0
			Nassarius vibex		0	1	0	0	0	0	0	0
			Pyrgocythara plicosa		0	0	0	0	0	0	0	0
			Crepidula fornicata		0	3	0	0	0	0	0	0
			Crepidula plana		0	0	0	0	0	0	0	0
			Cerithiopsis greenii		0	0	0	0	0	0	0	0
			Epitonium rupicola		0	0	0	0	0	0	0	0
			Gastropoda (LPIL)		0	0	0	2	0	0	0	0
	Bivalvia											
			Anadara transversa	PS, EQ	0	0	0	0	0	0	0	0
			Amygdalum papyrium		0	0	0	0	0	0	0	0
			Anomia simplex		0	1	0	0	0	0	0	0
			Pododesmus rudis		0	1	0	0	0	0	0	0
			Crassostrea virginica		0	1	0	0	0	0	0	0
			Mulinia lateralis	OP	2	0	0	0	0	0	0	0
			Tagelus sp.	PS, EQ?	0	0	0	0	0	0	0	0
			Macoma tenta	·	0	0	0	2	0	0	0	0
			Tellinidae (LPIL)		0	0	0	0	0	0	0	0
			Gemma gemma	OP	1	60	0	0	0	0	0	0
			Mercenaria mercenaria	PS, EQ	2	1	0	0	0	0	0	0

TABLE D-9 2010 Benthic Invertebrate Sampling Results SWMU 3 Benthic Invertebrate Evaluation Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

					LW03-SD508	LW03-SD509	LW03-SD510	LW03-SD511	LW03-SD512	LW03-SD513	LW03-SD514	LW03-SD515
Phylum	Class	Order	Taxon	Pollution	LW03-SD508-00-10C	LW03-SD509-00-10C	LW03-SD510-00-10C	LW03-SD511-00-10C	LW03-SD512-00-10C	LW03-SD513-00-10C	LW03-SD514-00-10C	LW03-SD515-00-10C
Pilylulli	Class	Order	Taxon	Classification <sup>1</sup>	Near Shore	Near Shore	Offshore	Offshore	Offshore	Marina	Marina	Marina
					09/10/2010	09/09/2010	08/31/2010	08/31/2010	09/02/2010	09/10/2010	09/10/2010	09/09/2010
			Veneridae (LPIL)		0	1	2	5	0	0	0	0
			Bivalvia (LPIL)		0	1	0	0	0	0	0	1
Phoronida												
			Phoronida (LPIL)		3	0	4	20	0	1	0	4
Chordata												
			Branchiostoma sp.		0	1	0	0	0	0	0	0
			Total Organisms		39	93	27	59	9	21	13	26
			Taxa Richness (Number of Taxa)		13	18	10	13	6	5	5	14
			Total Density (Number per Square Meter)		560	1,336	388	848	129	302	187	374
			Percent Contribution of Dominant Taxon		35.9	64.5	29.6	33.9	44.4	71.4	38.5	19.2
			Density (No./Square Meter) Dominant Taxon		201	862	115	287	57	216	72	72
			Percent Spionid Polychaetes		28.2	2.15	48.1	20.3	66.7	4.76	30.8	34.6
			Percent Mediomastus and Capitella Polychaetes		43.6	11.8	7.41	0.00	0.00	71.4	38.5	7.69
			Density of Pollution Tolerant Organisms		402	201	216	172	72	244	129	144
			Percent Pollution Tolerant Organisms		71.8	15.1	55.6	20.3	55.6	81.0	69.2	38.5
			Density of Pollution Sensitive Organisms		57	29	14	201	14	0	29	72
			Percent Pollution Sensitive Organisms		10.3	2.15	3.70	23.7	11.1	0.00	15.4	19.2
			Ratio Pollution Sensitive/ Pollution Tolerant		0.14	0.14	0.07	1.17	0.20	0.00	0.22	0.50
			Shannon Diversity Index (Base e)		2.02	1.50	2.02	2.07	1.58	0.95	1.41	2.45
			Shannon Diversity Index (Base 2)		2.91	2.16	2.92	2.99	2.28	1.38	2.04	3.53
			Percent Amphipods		0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.85
			Percent Bivalves		12.8	71.0	7.41	11.9	0.00	0.00	0.00	3.85
			Percent Deposit Feeders	,	60.3	15.1	46.3	17.8	38.9	83.3	61.5	34.6

<sup>1 -</sup> Pollution classifications:

PS = Pollution Sensitive (Weisberg et al, 1997)
PI = Polution Indicator (Weisberg et al. 1997)
OP = Opportunistic (Ranasinghe et al. 1994)
EQ = Equlibrium (Ranasinghe et al. 1994)
? = Uncertanty due to taxonomic identification level

TABLE D-9
2010 Benthic Invertebrate Sampling Results
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

,					LW03-SD516	LW03-SD517	LW03-SD518	LW03-SD519	LW03-SD520	LW03-SD521	LW03-SD522	LW03-SD523
				Pollution	LW03-SD516-00-10C	LW03-SD517-00-10C	LW03-SD518-00-10C	LW03-SD519-00-10C	LW03-SD520-00-10C	LW03-SD521-00-10C	LW03-SD522-00-10C	LW03-SD523-00-10C
Phylum	Class	Order	Taxon	Classification <sup>1</sup>	Near Shore	Offshore	Offshore	Marina	Marina	Marina	Marina	Near Shore
				Classification	09/09/2010	08/31/2010	08/31/2010	09/02/2010	09/10/2010	09/12/2010	09/09/2010	09/09/2010
Porifera					0710712010	00/31/2010	00/31/2010	07/02/2010	07/10/2010	07/12/2010	0710712010	0710712010
Pornera	-		Porifera (LPIL)		0	1	1	0	0	1	0	0
0			Porliera (LPIL)		U	l	I	U	U	I	U	U
Cnidaria												
	Hydrozo	oa .	(1.01)		0	0	0			•		0
	<b>.</b>		Hydrozoa (LPIL)		0	0	0	0	0	0	0	0
	Anthozo	a										
			Actiniaria (LPIL)		0	0	0	0	0	0	0	0
			Actiniaria sp. A		0	0	0	0	0	0	0	0
			Anthozoa (LPIL)		0	0	0	0	0	0	0	0
Nemertea												
			Nemertea (LPIL)		0	0	0	0	0	0	0	0
Annelida												
	Polycha	eta										
			Dorvillea (Schistomeringos) rudolphi		0	0	0	0	0	1	0	0
			Marphysa sanguinea		0	0	0	0	3	0	0	0
			Glycera dibranchiata		0	0	0	0	0	0	1	0
			Ophioglycera sp.		0	0	0	0	0	0	0	0
			Glycinde solitaria	PS, OP	5	0	0	0	0	0	3	4
			Gyptis crypta		0	0	0	0	4	0	0	1
			Hesionidae (LPIL)		0	0	0	0	4	1	0	0
			Podarke obscura		0	0	0	0	13	0	0	2
			Laeonereis culveri		0	0	0	0	0	0	0	2
			Neanthes succinea	PI, OP	0	0	0	0	1	1	0	1
			Nereididae (LPIL)		1	0	0	0	0	0	0	7
			Platynereis dumerilii		0	0	0	0	0	0	0	1
			Diopatra cuprea	PS, EQ	0	0	0	1	0	0	0	0
			Phyllodoce mucosa	13, 20	0	0	0	0	0	0	0	0
			Phyllodocidae (LPIL)		0	0	0	0	0	0	0	0
			Syllidae (LPIL)		0	0	0	0	0	0	0	0
			Ampharetidae (LPIL)		0	0	0	0	0	0	0	0
	<del>                                     </del>		Spiochaetopterus costarum	PS	0	0	0	2	3	2	1	0
	+ +		Aphelochaeta sp.	۲۵	0	0	0	0	0	0	0	1
	+ +		Cirratulidae (LPIL)		0		0	0	0	1	1	2
					, and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second	0	0			1	<u> </u>	
			Tharyx sp.		0	0	Ŭ	0	0	0	0	0
			Pectinaria gouldii		0	0	0	0	0	0	1	2
			Pectinaria sp.		0	0	0	0	0	0	0	0
			Demonax microphthalmus		0	0	0	0	0	0	0	0
			Sabellidae (LPIL)		0	0	0	0	0	1	0	0
	ļļ		Sabellinae (LPIL)		0	0	0	0	0	0	0	0
			Hydroides dianthus		0	0	0	0	0	2	0	1
			Hydroides diathus		0	0	0	0	0	0	0	0
			Hydroides sp.		0	0	0	0	0	0	0	3
			Serpulidae (LPIL)		0	0	0	0	0	0	0	0
			Dipolydora cauleri		0	0	0	0	2	0	0	0

TABLE D-9
2010 Benthic Invertebrate Sampling Results
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

,			rk, virginia beach, virginia		LW03-SD516	LW03-SD517	LW03-SD518	LW03-SD519	LW03-SD520	LW03-SD521	LW03-SD522	LW03-SD523
			_	Pollution	LW03-SD516-00-10C	LW03-SD517-00-10C	LW03-SD518-00-10C	LW03-SD519-00-10C	LW03-SD520-00-10C	LW03-SD521-00-10C	LW03-SD522-00-10C	LW03-SD523-00-10C
Phylum	Class	Order	Taxon	Classification <sup>1</sup>	Near Shore	Offshore	Offshore	Marina	Marina	Marina	Marina	Near Shore
				Olassilication	09/09/2010	08/31/2010	08/31/2010	09/02/2010	09/10/2010	09/12/2010	09/09/2010	09/09/2010
			Marenzelleria viridis	PS	0	0	0	0	0	0	0	0
			Paraprionospio pinnata	PI, OP	0	0	0	3	0	2	2	2
			Polydora cornuta	PI, OP	0	0	0	0	4	2	0	2
			Pseudopolydora sp.		0	0	0	2	0	0	0	0
			Scolelepis texana		1	0	0	0	0	0	0	0
			Spio sp.		0	0	0	0	0	0	0	0
			Spionidae (LPIL)		0	0	0	0	1	0	0	1
			Streblospio benedicti	PI, OP	1	0	0	0	14	4	14	0
			Loimia medusa	PS	0	0	0	0	0	0	0	0
			Loimia sp.		0	0	0	0	0	0	0	0
			Pista cristata		0	0	0	0	5	2	0	0
			Terebellidae (LPIL)		0	0	0	0	0	0	2	0
			Capitella capitata complex Blake	PI, OP	2	0	0	0	7	15	1	47
			Capitella jonesi	PI, OP	0	0	0	0	2	1	2	3
			Capitella sp.	PI, OP	0	0	0	0	0	0	0	0
			Capitellidae (LPIL)	, -	0	0	0	0	0	0	0	0
			Heteromastus filiformis	PI, OP	1	0	0	0	0	0	0	1
			Mediomastus ambiseta	PS, PI, OP	0	0	0	0	7	0	0	0
			Mediomastus californiensis		0	0	0	0	0	0	0	0
			Mediomastus sp.		1	0	0	0	3	0	1	5
			Orbiniidae (LPIL)		0	0	0	0	0	0	0	0
			Scoloplos rubra		0	0	0	0	0	0	1	0
			Clymenella torquata	PS, EQ	0	0	0	0	0	0	0	1
	Clitellat	а		·								
			Paranais frici		0	0	1	0	0	0	0	0
			Tubificoides sp.		0	0	0	0	25	0	0	0
Arthropoda			•									
	Malacos	straca										
		Amphipo										
			Aoridae (LPIL)		0	0	0	0	0	0	0	1
			Monocorophium acherusicum		0	0	0	0	2	0	0	0
			Monocorophium insidiosum		0	0	0	0	1	0	0	0
			Monocorophium sp.		0	0	0	0	13	0	0	0
			Listriella clymenellae	PS	0	0	0	0	0	0	1	0
		Cumacea										
	_		Cumacea (LPIL)		0	0	0	0	0	0	0	0
		Decapod										
			Palaemonetes sp.		0	0	0	0	0	0	0	1
			Panopeidae (LPIL)		0	0	0	0	1	0	0	1
			Panopeus herbstii		0	0	0	0	0	0	0	1
			Rhithropanopeus harrisii		0	0	0	0	0	0	0	2
			Pinnixa sp.		0	0	0	0	0	0	0	0
			Callinectes sp.		0	0	0	0	0	0	0	1
			Portunidae (LPIL)		1	0	0	0	0	0	0	0

TABLE D-9
2010 Benthic Invertebrate Sampling Results
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

,	,		r, viigiilia beacii, viigiilia		LW03-SD516	LW03-SD517	LW03-SD518	LW03-SD519	LW03-SD520	LW03-SD521	LW03-SD522	LW03-SD523
				Pollution	LW03-SD516-00-10C	LW03-SD517-00-10C	LW03-SD518-00-10C	LW03-SD519-00-10C	LW03-SD520-00-10C	LW03-SD521-00-10C	LW03-SD522-00-10C	LW03-SD523-00-10C
Phylum	Class	Order	Taxon	Classification <sup>1</sup>	Near Shore	Offshore	Offshore	Marina	Marina	Marina	Marina	Near Shore
				Classification	09/09/2010	08/31/2010	08/31/2010	09/02/2010	09/10/2010	09/12/2010	09/09/2010	09/09/2010
			Decapoda (LPIL)		0710712010	0	2	07/02/2010	0	0	0	0
			Decapoda (LPIL)  Decapoda zoea (larva)		0	0	0	0	0	0	0	0
		Lantastu			U	U	U	U	U	U	U	U
		Leptostr			0	0	0	0	0	0	0	0
		Musida	Leptostraca (LPIL)		0	0	Ü	U	U	0	0	0
		Mysida	Amanda amanda am		0	0	0	0	0	0	0	0
			Americamysis sp.		0	0	0	0	0	0	0	0
			Mysidae (LPIL)		0	0	0	0	0	0	0	0
		011	Neomysis americana		0	0	0	0	0	0	0	0
		Stomato		D0 F0		0		^	0		•	
			Squilla empusa	PS, EQ	0	0	0	0	0	0	0	0
	Maxillop											
		Sessilia				_		_	_			
			Balanus improvisus		0	0	0	0	0	0	0	3
			Balanomorpha (LPIL)		0	0	0	0	0	1	0	0
	Entogna	atha	0.11			_		_	_			
			Collembola (LPIL)		0	0	0	0	0	1	0	0
	Unspec	ified										
			Crustacea (LPIL)		0	0	0	0	0	0	0	0
Mollusca												
	Gastrop	oda										
			Acteocina canaliculata	PS	1	0	0	0	0	0	0	0
			Acteocina sp.		0	0	0	0	0	0	0	0
			Odostomia engonia		0	0	0	0	0	0	0	0
			Turbonilla interrupta		0	0	0	0	0	0	0	0
			Astyris lunata		0	0	0	0	0	0	0	0
			Nassarius vibex		1	0	0	0	0	0	0	0
			Pyrgocythara plicosa		0	0	0	0	0	0	0	0
			Crepidula fornicata		0	0	0	0	0	0	0	4
			Crepidula plana		0	0	0	0	0	0	0	0
			Cerithiopsis greenii		0	0	0	0	0	0	0	0
			Epitonium rupicola		0	0	0	0	0	0	0	0
			Gastropoda (LPIL)		0	0	0	0	0	0	0	0
	Bivalvia											
			Anadara transversa	PS, EQ	0	0	0	0	0	0	0	0
			Amygdalum papyrium		0	0	0	0	0	0	0	0
			Anomia simplex		0	0	0	0	0	0	0	0
			Pododesmus rudis		0	0	0	0	0	0	0	1
			Crassostrea virginica		0	0	0	0	0	0	0	1
			Mulinia lateralis	OP	0	0	0	0	0	0	0	0
			Tagelus sp.	PS, EQ?	0	0	0	0	0	0	0	3
			Macoma tenta		0	0	0	0	0	0	0	0
			Tellinidae (LPIL)		1	0	0	0	0	0	0	0
			Gemma gemma	OP	17	1	0	0	0	0	2	15
			Mercenaria mercenaria	PS, EQ	0	0	0	0	0	0	0	0

TABLE D-9 2010 Benthic Invertebrate Sampling Results SWMU 3 Benthic Invertebrate Evaluation Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

					LW03-SD516	LW03-SD517	LW03-SD518	LW03-SD519	LW03-SD520	LW03-SD521	LW03-SD522	LW03-SD523
Phylum	Class	Order	Taxon	Pollution	LW03-SD516-00-10C	LW03-SD517-00-10C	LW03-SD518-00-10C	LW03-SD519-00-10C	LW03-SD520-00-10C	LW03-SD521-00-10C	LW03-SD522-00-10C	LW03-SD523-00-10C
Filylulli	Class	Oruei	Taxon	Classification <sup>1</sup>	Near Shore	Offshore	Offshore	Marina	Marina	Marina	Marina	Near Shore
					09/09/2010	08/31/2010	08/31/2010	09/02/2010	09/10/2010	09/12/2010	09/09/2010	09/09/2010
			Veneridae (LPIL)		2	0	0	0	0	1	1	4
			Bivalvia (LPIL)		0	0	0	0	0	1	2	2
Phoronida												
			Phoronida (LPIL)		4	0	0	0	0	0	17	9
Chordata												
			Branchiostoma sp.		0	0	0	0	0	0	0	0
			Total Organisms		39	2	4	8	115	40	53	138
			Taxa Richness (Number of Taxa)		14	2	3	4	20	18	17	35
			Total Density (Number per Square Meter)		560	29	57	115	1,652	575	761	1,983
			Percent Contribution of Dominant Taxon		43.6	50.0	50.0	37.5	21.7	37.5	32.1	34.1
			Density (No./Square Meter) Dominant Taxon		244	14	29	43	359	216	244	675
			Percent Spionid Polychaetes		5.13	0.00	0.00	62.5	18.3	20.0	30.2	3.62
			Percent Mediomastus and Capitella Polychaetes		10.3	0.00	0.00	0.00	16.5	40.0	7.55	40.6
			Density of Pollution Tolerant Organisms		57	0	0	43	503	359	273	805
			Percent Pollution Tolerant Organisms		10.3	0.00	0.00	37.5	30.4	62.5	35.8	40.6
			Density of Pollution Sensitive Organisms		86	0	0	43	43	29	72	115
			Percent Pollution Sensitive Organisms		15.4	0.00	0.00	37.5	2.61	5.00	9.43	5.80
			Ratio Pollution Sensitive/ Pollution Tolerant		1.50			1.00	0.09	0.08	0.26	0.14
			Shannon Diversity Index (Base e)		2.01	0.69	1.04	1.32	2.57	2.36	2.17	2.73
			Shannon Diversity Index (Base 2)		2.90	1.00	1.50	1.91	3.71	3.41	3.13	3.93
			Percent Amphipods		0.00	0.00	0.00	0.00	13.9	0.00	1.89	0.72
			Percent Bivalves		51.3	50.0	0.00	0.00	0.00	5.00	9.43	18.8
			Percent Deposit Feeders		14.1	0.00	25.0	43.8	52.6	61.3	31.1	49.3

<sup>1 -</sup> Pollution classifications:

PS = Pollution Sensitive (Weisberg et al, 1997)
PI = Polution Indicator (Weisberg et al. 1997)
OP = Opportunistic (Ranasinghe et al. 1994)
EQ = Equlibrium (Ranasinghe et al. 1994)
? = Uncertanty due to taxonomic identification level

TABLE D-9
2010 Benthic Invertebrate Sampling Results
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

John Expour			ek, Virginia Beach, Virginia T		TWO CDESE	TWOS CDESA	LWO2 CDE27	TWO3 CDE30	TWOS CDESO	TWOS CDESO	TWOS CDESS	1 MO2 CDE24 01
				Pollution	LW03-SD525	LW03-SD526	LW03-SD527	LW03-SD528	LW03-SD529	LW03-SD530	LW03-SD533	LW03-SD534-01
Phylum	Class	Order	Taxon		LW03-SD525-00-10C		LW03-SD527-00-10C	LW03-SD528-00-10C	LW03-SD529-00-10C	LW03-SD530-00-10C	LW03-SD533-00-10C	LW03-SD534-01-10C
				Classification <sup>1</sup>	Marina	Marina	Marina	Offshore	Near Shore	Marina	Offshore	Near Shore
					09/02/2010	09/10/2010	09/12/2010	09/09/2010	09/09/2010	09/02/2010	09/01/2010	09/01/2010
Porifera												
			Porifera (LPIL)		0	1	1	0	0	0	0	0
Cnidaria												
	Hydrozo	oa										
			Hydrozoa (LPIL)		0	0	0	0	1	0	0	0
	Anthozo	oa										
			Actiniaria (LPIL)		0	0	37	0	7	0	0	0
			Actiniaria sp. A		0	0	0	0	1	0	0	0
			Anthozoa (LPIL)		0	0	1	0	0	0	0	0
Nemertea												
			Nemertea (LPIL)		0	0	0	1	0	0	0	0
Annelida												
	Polycha	eta										
			Dorvillea (Schistomeringos) rudolphi		0	0	1	0	0	0	0	0
			Marphysa sanguinea		0	0	0	0	0	0	0	0
			Glycera dibranchiata		0	0	0	0	0	0	0	0
			Ophioglycera sp.		0	0	0	0	0	0	0	0
			Glycinde solitaria	PS, OP	0	0	0	0	3	0	0	0
			Gyptis crypta		0	0	0	0	0	0	0	0
			Hesionidae (LPIL)		0	0	0	0	0	0	0	0
			Podarke obscura		0	0	3	0	5	0	0	0
			Laeonereis culveri		0	0	0	0	0	0	0	0
			Neanthes succinea	PI, OP	0	0	0	0	0	0	0	0
			Nereididae (LPIL)	·	0	0	0	0	0	0	0	0
			Platynereis dumerilii		0	0	0	0	0	0	0	0
			Diopatra cuprea	PS, EQ	0	0	0	0	0	0	0	0
			Phyllodoce mucosa		0	0	0	0	0	0	0	0
			Phyllodocidae (LPIL)		0	0	0	0	0	0	0	0
			Syllidae (LPIL)		0	0	0	0	0	0	0	0
			Ampharetidae (LPIL)		0	0	0	0	0	0	0	0
			Spiochaetopterus costarum	PS	0	0	1	2	0	0	0	0
			Aphelochaeta sp.		0	0	0	0	0	0	0	0
			Cirratulidae (LPIL)		0	0	0	0	4	0	0	0
			Tharyx sp.		0	0	0	0	4	0	0	0
			Pectinaria gouldii		0	0	0	0	3	0	0	0
			Pectinaria sp.		0	0	0	0	0	0	0	0
			Demonax microphthalmus		0	0	8	0	2	0	0	0
			Sabellidae (LPIL)		0	0	2	0	0	0	0	0
			Sabellinae (LPIL)		0	0	0	0	0	0	0	0
			Hydroides dianthus		0	0	0	0	0	0	0	0
			Hydroides diathus		0	0	0	0	0	0	0	0
			Hydroides sp.		0	0	2	0	0	0	0	0
			Serpulidae (LPIL)		0	0	0	0	0	0	0	0
			Dipolydora cauleri		0	0	0	0	0	0	0	0
			Dipolyuota caulett		U	U	U	U	U	U	U	U

TABLE D-9
2010 Benthic Invertebrate Sampling Results
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

			k, Virginia Beach, Virginia		LW03-SD525	LW03-SD526	LW03-SD527	LW03-SD528	LW03-SD529	LW03-SD530	LW03-SD533	LW03-SD534-01
				Pollution	LW03-SD525-00-10C	LW03-SD526-00-10C	LW03-SD527-00-10C	LW03-SD528-00-10C	LW03-SD529-00-10C	LW03-SD530-00-10C	LW03-SD533-00-10C	LW03-SD534-01-10C
Phylum	Class	Order	Taxon	Classification <sup>1</sup>	Marina	Marina	Marina	Offshore	Near Shore	Marina	Offshore	Near Shore
				Olassilleation	09/02/2010	09/10/2010	09/12/2010	09/09/2010	09/09/2010	09/02/2010	09/01/2010	09/01/2010
			Marenzelleria viridis	PS	0	0	0	0	0	0	0	0
			Paraprionospio pinnata	PI, OP	0	0	0	3	0	0	3	0
			Polydora cornuta	PI, OP	0	0	4	0	9	0	0	0
			Pseudopolydora sp.	11,01	0	0	n n	0	0	0	0	0
			Scolelepis texana		0	0	0	0	0	0	0	0
			Spio sp.		0	0	0	0	0	0	0	0
			Spionidae (LPIL)		0	0	0	0	0	0	0	0
			Streblospio benedicti	PI, OP	0	3	0	0	3	0	1	0
			Loimia medusa	PS	0	0	0	0	0	0	0	0
			Loimia sp.	13	0	0	0	0	0	0	0	0
			Pista cristata		0	0	0	0	0	0	0	0
			Terebellidae (LPIL)		0	0	0	0	3	0	0	0
			Capitella capitata complex Blake	PI, OP	0	0	Q	0	2	0	0	0
			Capitella jonesi	PI, OP	0	0	0	0	0	0	0	0
			Capitella sp.	PI, OP	0	0	0	0	0	0	0	0
			Capitellidae (LPIL)	FI, OF	0	0	0	0	2	0	0	0
			Heteromastus filiformis	PI, OP	0	0	0	0	1	0	0	0
			Mediomastus ambiseta	PS, PI, OP	0	0	0	0	0	0	0	0
			Mediomastus californiensis	F3, F1, UF	0	0	0	0	0	0	0	0
			Mediomastus sp.		0	0	0	0	0	0	0	0
			Orbiniidae (LPIL)		0	0	0	0	7	0	0	0
			Scoloplos rubra		0	0	0	0	2	0	0	0
			Clymenella torquata	PS, EQ	0	0	0	0	1	0	0	0
	Clitellat	2	Ciymenella torquata	F3, LQ	U	U	U	U	ı	U	U	U
	Cintenat	а	Paranais frici		0	0	0	Λ	0	0	0	0
			Tubificoides sp.		0	0	0	0	0	0	0	0
Arthropoda			rubilicolues sp.		U	U	0	0	0	0	0	U
Aitiliopoda	Malacos	straca										
	Malacoc	Amphipo	l nda									
		Ampinpo	Aoridae (LPIL)		0	0	0	0	0	0	0	0
			Monocorophium acherusicum		0	0	0	0	0	0	0	0
			Monocorophium insidiosum		0	0	0	0	0	0	0	0
			Monocorophium sp.		0	0	0	0	0	0	0	0
			Listriella clymenellae	PS	0	0	0	0	0	0	0	0
		Cumacea	, ,	15	<u> </u>	, v	<u> </u>		· ·	<u> </u>		<u> </u>
		2 411/4000	Cumacea (LPIL)		0	0	0	0	0	0	0	0
		Decapod			, i	Ť	<u> </u>	i i	Ĭ	, , ,	<u> </u>	
		200000	Palaemonetes sp.		0	0	0	0	0	0	0	0
			Panopeidae (LPIL)		0	0	0	0	0	0	0	0
			Panopeus herbstii		0	0	0	0	0	0	0	0
			Rhithropanopeus harrisii		0	0	0	0	0	0	0	0
			Pinnixa sp.		0	0	0	0	0	0	0	0
			Callinectes sp.		0	0	0	0	0	0	0	0
			Portunidae (LPIL)		0	0	0	0	0	0	0	0
			i ortaniuac (Li IL)		U	l U	U		l U	U	U	■ ∪

TABLE D-9
2010 Benthic Invertebrate Sampling Results
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

<u> </u>			r, viigiilia beacii, viigiilia		LW03-SD525	LW03-SD526	LW03-SD527	LW03-SD528	LW03-SD529	LW03-SD530	LW03-SD533	LW03-SD534-01
				Pollution	LW03-SD525-00-10C	LW03-SD526-00-10C	LW03-SD527-00-10C	LW03-SD528-00-10C	LW03-SD529-00-10C	LW03-SD530-00-10C	LW03-SD533-00-10C	LW03-SD534-01-10C
Phylum	Class	Order	Taxon	Classification <sup>1</sup>	Marina	Marina	Marina	Offshore	Near Shore	Marina	Offshore	Near Shore
				Ciassilication	09/02/2010	09/10/2010	09/12/2010	09/09/2010	09/09/2010	09/02/2010	09/01/2010	09/01/2010
	<u> </u>		Decapoda (LPIL)		07/02/2010	0	07/12/2010	0	1	0	0	0
			Decapoda (LPIL)  Decapoda zoea (larva)		0	0	0	0	0	0	0	0
		Lautaatu	, ,		U	U	U	U	U	U	U	Ü
		Leptostr			0	0	0	0	0	0	0	0
		Musida	Leptostraca (LPIL)		0	0	U	U	U	0	0	0
		Mysida	Amaniaamanalaan		0	0	0	0	0	0	0	0
			Americamysis sp.		0	0	O .	0	0	0	0	0
			Mysidae (LPIL)		0	0	0	0	0	0	0	0
		0, ,	Neomysis americana		0	0	0	0	0	0	0	0
		Stomato		D0 F0		^			0			0
			Squilla empusa	PS, EQ	0	0	0	0	0	0	0	0
	Maxillop											
		Sessilia				_			_			
			Balanus improvisus		0	0	0	0	0	0	0	0
			Balanomorpha (LPIL)		0	0	0	0	0	0	0	0
	Entogna	atha	0.11.1.1.1.1.2.1.2			_	_		_	_		_
			Collembola (LPIL)		0	0	0	0	0	0	0	0
	Unspec	ified										
			Crustacea (LPIL)		0	0	0	0	0	0	0	0
Mollusca												
	Gastrop	oda										
			Acteocina canaliculata	PS	0	0	0	0	2	0	0	0
			Acteocina sp.		0	0	0	0	0	0	0	0
			Odostomia engonia		0	0	0	0	0	0	0	0
			Turbonilla interrupta		0	0	0	0	0	0	0	0
			Astyris lunata		0	0	0	0	0	0	0	0
			Nassarius vibex		0	0	0	0	0	0	0	0
			Pyrgocythara plicosa		0	0	0	0	0	0	0	0
			Crepidula fornicata		0	0	1	0	5	0	0	0
			Crepidula plana		0	0	0	0	2	0	0	0
			Cerithiopsis greenii		0	0	0	0	0	0	0	0
			Epitonium rupicola		0	0	0	0	0	0	0	0
			Gastropoda (LPIL)		0	0	0	0	0	0	0	0
	Bivalvia	1										
			Anadara transversa	PS, EQ	0	0	0	0	0	0	0	0
			Amygdalum papyrium		0	0	0	0	0	0	0	0
			Anomia simplex		0	0	0	0	1	0	0	0
			Pododesmus rudis		0	0	0	0	0	0	0	0
			Crassostrea virginica		0	0	0	0	0	0	0	0
			Mulinia lateralis	OP	0	0	0	0	0	0	0	0
			Tagelus sp.	PS, EQ?	0	0	0	0	0	0	0	0
			Macoma tenta		0	0	0	0	0	0	0	0
			Tellinidae (LPIL)		0	0	0	0	8	0	0	0
			Gemma gemma	OP	0	0	0	0	31	0	0	0
			Mercenaria mercenaria	PS, EQ	0	0	0	0	3	0	0	0

TABLE D-9 2010 Benthic Invertebrate Sampling Results SWMU 3 Benthic Invertebrate Evaluation Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

					LW03-SD525	LW03-SD526	LW03-SD527	LW03-SD528	LW03-SD529	LW03-SD530	LW03-SD533	LW03-SD534-01
Phylum	Class	Order	Taxon	Pollution	LW03-SD525-00-10C	LW03-SD526-00-10C	LW03-SD527-00-10C	LW03-SD528-00-10C	LW03-SD529-00-10C	LW03-SD530-00-10C	LW03-SD533-00-10C	LW03-SD534-01-10C
Priyiuiii	Class	Order	Taxon	Classification <sup>1</sup>	Marina	Marina	Marina	Offshore	Near Shore	Marina	Offshore	Near Shore
					09/02/2010	09/10/2010	09/12/2010	09/09/2010	09/09/2010	09/02/2010	09/01/2010	09/01/2010
			Veneridae (LPIL)		0	0	0	0	36	0	0	0
			Bivalvia (LPIL)		0	0	0	0	5	0	1	0
Phoronida												
			Phoronida (LPIL)		0	0	0	1	11	0	2	0
Chordata												
			Branchiostoma sp.		0	0	0	0	0	0	0	0
		-	-									
			Total Organisms		0	4	70	7	168	0	10	0
			Taxa Richness (Number of Taxa)		0	2	12	4	30	0	4	0
			Total Density (Number per Square Meter)		0	57	1,006	101	2,414	0	144	0
			Percent Contribution of Dominant Taxon			75.0	52.9	42.9	21.4		40.0	
			Density (No./Square Meter) Dominant Taxon			43	532	43	517		57	
			Percent Spionid Polychaetes			75.0	5.71	42.9	7.14		70.0	
			Percent Mediomastus and Capitella Polychaetes			0.00	12.9	0.00	8.33		0.00	
			Density of Pollution Tolerant Organisms			43	187	43	216		101	
			Percent Pollution Tolerant Organisms			75.0	18.6	42.9	8.93		70.0	
			Density of Pollution Sensitive Organisms			0	14	29	129		0	
			Percent Pollution Sensitive Organisms			0.00	1.43	28.6	5.36		0.00	
			Ratio Pollution Sensitive/ Pollution Tolerant			0.00	0.08	0.67	0.60		0.00	
			Shannon Diversity Index (Base e)			0.56	1.65	1.28	2.79		1.28	
			Shannon Diversity Index (Base 2)			0.81	2.39	1.84	4.03		1.85	
			Percent Amphipods			0.00	0.00	0.00	0.00		0.00	
			Percent Bivalves			0.00	0.00	0.00	50.0		10.0	
			Percent Deposit Feeders			37.5	16.4	35.7	21.1		35.0	

<sup>1 -</sup> Pollution classifications:

PS = Pollution Sensitive (Weisberg et al, 1997)
PI = Polution Indicator (Weisberg et al. 1997)
OP = Opportunistic (Ranasinghe et al. 1994)
EQ = Equlibrium (Ranasinghe et al. 1994)
? = Uncertanty due to taxonomic identification level

TABLE D-9
2010 Benthic Invertebrate Sampling Results
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

					LW03-SD534-02	LW03-SD534-03	LW03-SD535	LW03-SD537	LW03-SD538	LW03-SD539	LW03-SD540	LW03-SD541
				Pollution	LW03-SD534-02-10C		LW03-SD535-00-10C	LW03-SD537-00-10C	LW03-SD538-00-10C			LW03-SD541-00-10C
Phylum	Class	Order	Taxon		Near Shore	Near Shore	Near Shore	Offshore	Dry Dock	Dry Dock	Offshore	Near Shore
				Classification <sup>1</sup>	09/01/2010	09/01/2010	09/01/2010	09/01/2010	09/01/2010	09/01/2010	09/01/2010	09/07/2010
D '(					09/01/2010	09/01/2010	09/01/2010	09/01/2010	09/01/2010	09/01/2010	09/01/2010	09/07/2010
Porifera			Daviface (LDIL)		0	0	1	0	0	0	0	
0 : 1 : :			Porifera (LPIL)		0	0	l	0	0	0	0	0
Cnidaria												
	Hydrozo	a	(1.51)									
			Hydrozoa (LPIL)		0	0	0	0	0	0	0	0
	Anthozo	a	A 11 1 1 (1 DH)									
			Actiniaria (LPIL)		0	0	0	0	0	0	0	0
			Actiniaria sp. A		0	0	0	0	0	0	0	0
			Anthozoa (LPIL)		0	0	0	0	0	0	0	0
Nemertea												
			Nemertea (LPIL)		0	0	2	0	0	0	0	0
Annelida												
	Polycha	eta										
			Dorvillea (Schistomeringos) rudolphi		0	6	1	0	0	0	0	0
			Marphysa sanguinea		0	0	0	0	0	0	0	0
			Glycera dibranchiata		0	0	0	0	0	0	0	0
			Ophioglycera sp.		0	0	0	0	0	0	0	0
			Glycinde solitaria	PS, OP	0	2	19	0	0	0	0	0
			Gyptis crypta		0	3	8	0	0	0	0	0
			Hesionidae (LPIL)		0	4	0	0	0	0	0	0
			Podarke obscura		0	5	10	0	0	0	0	0
			Laeonereis culveri		0	0	0	0	0	0	0	0
			Neanthes succinea	PI, OP	0	0	0	0	0	0	0	0
			Nereididae (LPIL)		0	0	0	0	0	0	0	0
			Platynereis dumerilii		0	0	0	0	0	0	0	0
			Diopatra cuprea	PS, EQ	0	0	0	0	0	0	0	0
			Phyllodoce mucosa		0	0	1	0	0	0	0	0
			Phyllodocidae (LPIL)		0	0	1	0	0	0	0	0
			Syllidae (LPIL)		0	0	0	0	0	0	0	0
			Ampharetidae (LPIL)		0	0	0	0	0	0	0	0
			Spiochaetopterus costarum	PS	0	0	0	0	0	0	0	0
			Aphelochaeta sp.		0	0	0	0	0	0	0	0
			Cirratulidae (LPIL)		0	0	1	0	0	0	0	0
			Tharyx sp.		0	0	1	0	0	0	0	2
			Pectinaria gouldii		0	1	0	0	0	0	0	0
			Pectinaria sp.		0	0	0	0	0	0	0	0
			Demonax microphthalmus		0	0	5	0	0	0	0	1
			Sabellidae (LPIL)		0	0	0	0	0	0	0	0
			Sabellinae (LPIL)		0	0	0	0	0	0	0	0
			Hydroides dianthus		0	0	0	0	0	0	0	0
			Hydroides diathus		0	0	5	0	0	0	0	0
			Hydroides sp.		0	2	1	0	0	0	0	0
			Serpulidae (LPIL)		0	0	0	0	0	0	0	0
			Dipolydora cauleri		0	0	0	0	0	0	0	0

TABLE D-9
2010 Benthic Invertebrate Sampling Results
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

			ek, viigiilia beacii, viigiilia		LW03-SD534-02	LW03-SD534-03	LW03-SD535	LW03-SD537	LW03-SD538	LW03-SD539	LW03-SD540	LW03-SD541
			_	Pollution	LW03-SD534-02-10C	LW03-SD534-03-10C	LW03-SD535-00-10C	LW03-SD537-00-10C	LW03-SD538-00-10C	LW03-SD539-00-10C	LW03-SD540-00-10C	LW03-SD541-00-10C
Phylum	Class	Order	Taxon	Classification <sup>1</sup>	Near Shore	Near Shore	Near Shore	Offshore	Dry Dock	Dry Dock	Offshore	Near Shore
				Glacomoation	09/01/2010	09/01/2010	09/01/2010	09/01/2010	09/01/2010	09/01/2010	09/01/2010	09/07/2010
			Marenzelleria viridis	PS	0	0	0	0	0	0	0	0
			Paraprionospio pinnata	PI, OP	0	7	0	0	0	0	0	1
			Polydora cornuta	PI, OP	0	0	0	0	0	0	0	0
			Pseudopolydora sp.		0	0	0	0	0	0	0	0
			Scolelepis texana		0	0	0	0	0	0	0	0
			Spio sp.		0	0	0	0	0	0	0	0
			Spionidae (LPIL)		0	0	0	0	0	0	0	0
			Streblospio benedicti	PI, OP	0	0	1	1	0	0	0	0
			Loimia medusa	PS	0	0	4	0	0	0	0	0
			Loimia sp.		0	0	0	0	0	0	0	0
			Pista cristata		0	0	0	0	0	0	0	0
			Terebellidae (LPIL)		0	3	1	0	0	0	0	0
			Capitella capitata complex Blake	PI, OP	0	0	0	0	0	0	0	0
			Capitella jonesi	PI, OP	0	0	0	0	0	0	0	0
			Capitella sp.	PI, OP	0	0	0	0	0	0	0	0
			Capitellidae (LPIL)	·	0	0	0	0	0	0	0	0
			Heteromastus filiformis	PI, OP	0	1	0	0	0	0	0	0
			Mediomastus ambiseta	PS, PI, OP	0	0	3	0	0	0	0	0
			Mediomastus californiensis		0	0	1	0	0	0	0	0
			Mediomastus sp.		0	1	4	0	0	0	0	0
			Orbiniidae (LPIL)		0	0	0	0	0	0	0	0
			Scoloplos rubra		0	0	0	0	0	0	0	0
			Clymenella torquata	PS, EQ	0	0	0	0	0	0	0	0
	Clitellat	a	,									
			Paranais frici		0	0	0	0	0	0	0	0
			Tubificoides sp.		0	2	1	0	0	0	0	0
Arthropoda												
	Malacos	straca										
		Amphipo										
			Aoridae (LPIL)		0	0	0	0	0	0	0	0
			Monocorophium acherusicum		0	0	0	0	0	0	0	0
			Monocorophium insidiosum		0	0	0	0	0	0	0	0
			Monocorophium sp.		0	0	0	0	0	0	0	0
			Listriella clymenellae	PS	0	0	0	0	0	0	0	0
		Cumacea										
			Cumacea (LPIL)		0	0	0	0	0	0	0	0
		Decapoo										
			Palaemonetes sp.		0	0	0	0	0	0	0	0
			Panopeidae (LPIL)		0	0	0	0	0	0	0	0
			Panopeus herbstii		0	0	0	0	0	0	0	0
			Rhithropanopeus harrisii		0	0	1	0	0	0	0	0
			Pinnixa sp.		0	0	0	0	0	0	0	0
			Callinectes sp.		0	0	0	0	0	0	0	0
			Portunidae (LPIL)		0	0	0	0	0	0	0	0

TABLE D-9
2010 Benthic Invertebrate Sampling Results
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

	<u> </u>		rk, Virginia Beach, Virginia		LW03-SD534-02	LW03-SD534-03	LW03-SD535	LW03-SD537	LW03-SD538	LW03-SD539	LW03-SD540	LW03-SD541
				Pollution	LW03-SD534-02-10C	LW03-SD534-03-10C						LW03-SD541-00-10C
Phylum	Class	Order	Taxon	Classification <sup>1</sup>	Near Shore	Near Shore	Near Shore	Offshore	Dry Dock	Dry Dock	Offshore	Near Shore
				Classification	09/01/2010	09/01/2010	09/01/2010	09/01/2010	09/01/2010	09/01/2010	09/01/2010	09/07/2010
	1		Decembed (LDII.)		_							
			Decapoda (LPIL)		0	0	0	0	0	0	0	0
			Decapoda zoea (larva)		U	0	0	0	0	0	0	0
		Leptostr				2		^	0		^	
			Leptostraca (LPIL)		0	0	0	0	0	0	0	0
		Mysida										
			Americamysis sp.		0	0	0	0	0	0	0	0
			Mysidae (LPIL)		0	0	0	0	0	0	0	0
		<u> </u>	Neomysis americana		0	0	0	0	0	0	0	0
		Stomato										
			Squilla empusa	PS, EQ	0	0	0	0	0	0	0	0
	Maxillo											
		Sessilia				_		_	_			_
			Balanus improvisus		0	0	0	0	0	0	0	0
			Balanomorpha (LPIL)		0	0	0	0	0	0	0	0
	Entogna	atha										
			Collembola (LPIL)		0	0	0	0	0	0	0	0
	Unspec	ified										
			Crustacea (LPIL)		0	0	0	0	0	0	0	0
Mollusca												
	Gastrop	oda										
			Acteocina canaliculata	PS	0	1	1	0	0	0	0	0
			Acteocina sp.		0	0	0	0	0	0	0	0
			Odostomia engonia		0	0	0	0	0	0	0	0
			Turbonilla interrupta		0	0	0	0	0	0	0	0
			Astyris lunata		0	0	0	0	0	0	0	0
			Nassarius vibex		0	0	0	0	0	0	0	0
			Pyrgocythara plicosa		0	0	0	0	0	0	0	0
			Crepidula fornicata		0	0	4	0	0	0	0	1
			Crepidula plana		0	0	0	0	0	0	0	0
			Cerithiopsis greenii		0	0	0	0	0	0	0	0
			Epitonium rupicola		0	0	0	0	0	0	0	0
			Gastropoda (LPIL)		0	0	0	0	0	0	0	0
	Bivalvia										-	
			Anadara transversa	PS, EQ	0	0	1	0	0	0	0	0
			Amygdalum papyrium		0	0	0	0	0	0	0	0
			Anomia simplex		0	1	0	0	0	0	0	1
			Pododesmus rudis		0	0	0	0	0	0	0	0
			Crassostrea virginica		0	0	0	0	0	0	0	0
			Mulinia lateralis	OP	0	0	3	0	0	0	0	0
			Tagelus sp.	PS, EQ?	0	0	1	0	0	0	0	0
			Macoma tenta		0	0	0	0	0	0	0	0
			Tellinidae (LPIL)		0	0	0	0	0	0	0	0
			Gemma gemma	OP	0	0	3	0	0	0	0	0
			Mercenaria mercenaria	PS, EQ	0	0	2	0	0	0	0	1

TABLE D-9 2010 Benthic Invertebrate Sampling Results SWMU 3 Benthic Invertebrate Evaluation Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

					LW03-SD534-02	LW03-SD534-03	LW03-SD535	LW03-SD537	LW03-SD538	LW03-SD539	LW03-SD540	LW03-SD541
Phylum	Class	Order	Taxon	Pollution	LW03-SD534-02-10C	LW03-SD534-03-10C	LW03-SD535-00-10C	LW03-SD537-00-10C	LW03-SD538-00-10C	LW03-SD539-00-10C	LW03-SD540-00-10C	LW03-SD541-00-10C
Priyiuiii	Class	Order	Taxon	Classification <sup>1</sup>	Near Shore	Near Shore	Near Shore	Offshore	Dry Dock	Dry Dock	Offshore	Near Shore
					09/01/2010	09/01/2010	09/01/2010	09/01/2010	09/01/2010	09/01/2010	09/01/2010	09/07/2010
			Veneridae (LPIL)		0	2	12	0	0	0	0	0
			Bivalvia (LPIL)		0	0	0	0	0	0	0	0
Phoronida												
			Phoronida (LPIL)		0	0	11	0	0	0	0	2
Chordata												
			Branchiostoma sp.		0	0	0	0	0	0	0	0
			Total Organisms		0	41	110	1	0	0	0	9
			Taxa Richness (Number of Taxa)		0	15	30	1	0	0	0	7
			Total Density (Number per Square Meter)		0	589	1,580	14	0	0	0	129
			Percent Contribution of Dominant Taxon			17.1	17.3	100				22.2
			Density (No./Square Meter) Dominant Taxon			101	273	14				29
			Percent Spionid Polychaetes			17.1	0.91	100				11.1
			Percent Mediomastus and Capitella Polychaetes			4.88	7.27	0.00				0.00
			Density of Pollution Tolerant Organisms			115	57	14				14
			Percent Pollution Tolerant Organisms			19.5	3.64	100				11.1
			Density of Pollution Sensitive Organisms			43	402	0				14
			Percent Pollution Sensitive Organisms			7.32	25.5	0.00				11.1
			Ratio Pollution Sensitive/ Pollution Tolerant			0.38	7.00	0.00				1.00
			Shannon Diversity Index (Base e)			2.49	2.91	0.00				1.89
			Shannon Diversity Index (Base 2)			3.60	4.20	0.00				2.73
			Percent Amphipods			0.00	0.00	0.00				0.00
			Percent Bivalves			7.32	20.0	0.00				22.2
			Percent Deposit Feeders			24.4	13.5	50.0				27.8

<sup>1 -</sup> Pollution classifications:

PS = Pollution Sensitive (Weisberg et al, 1997)
PI = Polution Indicator (Weisberg et al. 1997)
OP = Opportunistic (Ranasinghe et al. 1994)
EQ = Equlibrium (Ranasinghe et al. 1994)
? = Uncertanty due to taxonomic identification level

TABLE D-9
2010 Benthic Invertebrate Sampling Results
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

			ek, Virginia Beach, Virginia I		LW03-SD543	LW03-SD544	LW03-SD545	LW03-SD546	LW03-SD547	LW03-SD548	LW03-SD549	LW03-SD550-01
				Pollution		LW03-SD544-00-10C	LW03-SD545 LW03-SD545-00-10C	LW03-SD546-00-10C	LW03-SD547-00-10C	LW03-SD548-00-10C	LW03-SD549-00-10C	LW03-SD550-01-10C
Phylum	Class	Order	Taxon		Offshore					Offshore		
				Classification <sup>1</sup>	09/01/2010	Dry Dock 09/01/2010	Offshore 09/01/2010	Offshore 09/01/2010	Near Shore 09/07/2010	09/09/2010	Offshore 09/09/2010	Offshore 09/08/2010
D 16					09/01/2010	09/01/2010	09/01/2010	09/01/2010	09/07/2010	09/09/2010	09/09/2010	09/08/2010
Porifera			2 (5 (1211)			_						
			Porifera (LPIL)		0	0	0	0	0	1	0	0
Cnidaria												
	Hydrozo	oa	6.2.1			_		_		_		
			Hydrozoa (LPIL)		0	0	0	0	0	0	0	0
	Anthozo	oa				_		_		_		
			Actiniaria (LPIL)		0	0	0	0	0	0	0	0
			Actiniaria sp. A		0	0	0	0	0	0	0	0
			Anthozoa (LPIL)		0	0	0	0	0	0	0	0
Nemertea												
			Nemertea (LPIL)		0	0	0	0	0	0	0	0
Annelida												
	Polycha	eta										
			Dorvillea (Schistomeringos) rudolphi		0	0	0	0	0	0	0	0
			Marphysa sanguinea		0	0	0	0	0	0	0	0
			Glycera dibranchiata		0	0	0	0	0	0	0	0
			Ophioglycera sp.		0	0	0	0	0	0	0	0
			Glycinde solitaria	PS, OP	0	0	0	0	2	0	0	0
			Gyptis crypta		0	0	0	0	0	0	0	0
			Hesionidae (LPIL)		0	0	0	0	0	0	0	0
			Podarke obscura		0	0	0	0	0	0	0	0
			Laeonereis culveri		0	0	0	0	0	0	0	0
			Neanthes succinea	PI, OP	0	0	0	0	0	0	0	0
			Nereididae (LPIL)		0	0	0	0	0	0	0	0
			Platynereis dumerilii		0	0	0	0	0	0	0	0
			Diopatra cuprea	PS, EQ	0	0	0	0	0	0	0	0
			Phyllodoce mucosa		0	0	0	0	0	0	0	0
			Phyllodocidae (LPIL)		0	0	0	0	0	0	0	0
			Syllidae (LPIL)		0	0	0	0	0	0	0	0
			Ampharetidae (LPIL)		0	0	0	0	0	0	0	0
			Spiochaetopterus costarum	PS	0	0	0	0	0	0	0	0
			Aphelochaeta sp.		0	0	0	0	0	0	0	0
			Cirratulidae (LPIL)		0	0	0	0	1	0	0	0
			Tharyx sp.		0	0	0	0	0	0	0	0
			Pectinaria gouldii		0	0	0	0	0	0	0	0
			Pectinaria sp.		0	0	0	0	0	0	0	0
			Demonax microphthalmus		0	0	0	0	0	0	0	0
			Sabellidae (LPIL)		0	0	0	0	0	0	0	0
			Sabellinae (LPIL)		0	0	0	0	0	0	0	0
			Hydroides dianthus		0	0	0	0	0	0	0	0
			Hydroides diathus		0	0	0	0	0	0	0	0
			Hydroides sp.		0	0	0	0	0	0	0	0
			Serpulidae (LPIL)		0	0	0	0	0	0	0	0
			Dipolydora cauleri		0	0	0	0	0	0	0	0
	I I		Dipolyuora caulen	<u> </u>	U	U	U	U	U	U	U	U

TABLE D-9
2010 Benthic Invertebrate Sampling Results
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

			N, Vilginia Bodon, Vilginia		LW03-SD543	LW03-SD544	LW03-SD545	LW03-SD546	LW03-SD547	LW03-SD548	LW03-SD549	LW03-SD550-01
<b>                                     </b>			_	Pollution		LW03-SD544-00-10C	LW03-SD545-00-10C	LW03-SD546-00-10C	LW03-SD547-00-10C	LW03-SD548-00-10C	LW03-SD549-00-10C	LW03-SD550-01-10C
Phylum	Class	Order	Taxon	Classification <sup>1</sup>	Offshore	Dry Dock	Offshore	Offshore	Near Shore	Offshore	Offshore	Offshore
					09/01/2010	09/01/2010	09/01/2010	09/01/2010	09/07/2010	09/09/2010	09/09/2010	09/08/2010
			Marenzelleria viridis	PS	0	0	0	0	0	0	0	0
			Paraprionospio pinnata	PI, OP	0	0	0	0	0	0	0	0
			Polydora cornuta	PI, OP	0	0	0	0	1	0	0	0
			Pseudopolydora sp.		0	0	0	0	0	0	0	0
			Scolelepis texana		0	0	0	0	0	0	0	0
			Spio sp.		0	0	0	0	0	0	0	0
			Spionidae (LPIL)		0	0	0	0	0	0	0	0
			Streblospio benedicti	PI, OP	0	0	0	0	1	0	0	0
			Loimia medusa	PS	0	0	0	0	0	0	0	0
			Loimia sp.		0	0	0	0	0	0	0	0
			Pista cristata		0	0	0	0	0	0	0	0
			Terebellidae (LPIL)		0	0	0	0	0	0	0	0
			Capitella capitata complex Blake	PI, OP	0	0	0	0	0	0	0	0
			Capitella jonesi	PI, OP	0	0	0	0	0	0	0	0
			Capitella sp.	PI, OP	0	0	0	0	0	0	0	0
			Capitellidae (LPIL)		0	0	0	0	0	0	0	0
			Heteromastus filiformis	PI, OP	0	0	0	0	0	0	0	0
			Mediomastus ambiseta	PS, PI, OP	0	0	0	0	0	0	0	0
			Mediomastus californiensis		0	0	0	0	0	0	0	0
			Mediomastus sp.		0	0	0	0	0	0	0	0
			Orbiniidae (LPIL)		0	0	0	0	0	0	0	0
			Scoloplos rubra		0	0	0	0	0	0	0	0
			Clymenella torquata	PS, EQ	0	0	0	0	0	0	0	0
	Clitellata	a										
			Paranais frici		0	0	0	0	0	0	0	0
			Tubificoides sp.		0	0	0	0	0	0	0	0
Arthropoda												
	Malacos											
		Amphipo										
			Aoridae (LPIL)		0	0	0	0	0	0	0	0
			Monocorophium acherusicum		0	0	0	0	0	0	0	0
			Monocorophium insidiosum		0	0	0	0	0	0	0	0
			Monocorophium sp.		0	0	0	0	0	0	0	0
			Listriella clymenellae	PS	0	0	0	0	0	0	0	0
		Cumacea										
			Cumacea (LPIL)		0	0	0	0	0	0	0	0
		Decapod										
			Palaemonetes sp.		0	0	0	0	0	0	0	0
			Panopeidae (LPIL)		0	0	0	0	0	0	0	0
			Panopeus herbstii		0	0	0	0	0	0	0	0
			Rhithropanopeus harrisii		0	0	0	0	0	0	0	0
			Pinnixa sp.		0	0	0	0	0	0	0	0
			Callinectes sp.		0	0	0	0	0	0	0	0
			Portunidae (LPIL)		0	0	0	0	0	0	0	0

TABLE D-9
2010 Benthic Invertebrate Sampling Results
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

,			ek, viigiilia beacii, viigiilia		LW03-SD543	LW03-SD544	LW03-SD545	LW03-SD546	LW03-SD547	LW03-SD548	LW03-SD549	LW03-SD550-01
				Pollution	LW03-SD543-00-10C	LW03-SD544-00-10C	LW03-SD545-00-10C	LW03-SD546-00-10C	LW03-SD547-00-10C	LW03-SD548-00-10C	LW03-SD549-00-10C	LW03-SD550-01-10C
Phylum	Class	Order	Taxon	Classification <sup>1</sup>	Offshore	Dry Dock	Offshore	Offshore	Near Shore	Offshore	Offshore	Offshore
				Classification	09/01/2010	09/01/2010	09/01/2010	09/01/2010	09/07/2010	09/09/2010	09/09/2010	09/08/2010
	<u> </u>		Decapoda (LPIL)		07/01/2010	0	07/01/2010	07/01/2010	0	0	0	0
			Decapoda zoea (larva)		0	0	0	0	0	0	2	0
		Lantactu	, ,		U	U	U	U	U	U	Z	U
		Leptostr			0	0	0	0	0	0	0	0
		Monalala	Leptostraca (LPIL)		0	0	U	U	U	0	U	0
		Mysida	A			0	0		0	0	0	0
			Americamysis sp.		0	0	O .	0	0	0	0	0
			Mysidae (LPIL)		0	0	0	0	0	0	0	0
		•	Neomysis americana		0	0	0	0	0	0	0	0
		Stomato				_						
			Squilla empusa	PS, EQ	0	0	0	0	0	0	0	0
	Maxillor											
		Sessilia										
			Balanus improvisus		0	0	0	0	0	0	0	0
			Balanomorpha (LPIL)		0	0	0	0	0	0	0	0
	Entogna	atha										
			Collembola (LPIL)		0	0	0	0	0	0	0	0
	Unspec	ified										
			Crustacea (LPIL)		0	0	0	0	0	0	0	0
Mollusca			·									
	Gastrop	oda										
			Acteocina canaliculata	PS	0	0	0	0	0	0	0	0
			Acteocina sp.		0	0	0	0	0	0	0	0
			Odostomia engonia		0	0	0	0	0	0	0	0
			Turbonilla interrupta		0	0	0	0	0	0	0	0
			Astyris lunata		0	0	0	0	0	0	0	0
			Nassarius vibex		0	0	0	0	0	0	0	0
			Pyrgocythara plicosa		0	0	0	0	0	0	0	0
			Crepidula fornicata		0	0	0	0	0	0	0	0
			Crepidula plana		0	0	0	0	0	0	0	0
			Cerithiopsis greenii		0	0	0	0	0	0	0	0
			Epitonium rupicola		0	0	0	0	0	0	0	0
			Gastropoda (LPIL)		0	0	0	0	0	0	0	0
	Bivalvia	<u> </u>	Sastropoda (El IE)		U U	U U	U	0	U	U	<u> </u>	, , ,
	Divalvia	•	Anadara transversa	PS, EQ	0	0	0	0	0	0	0	0
			Amygdalum papyrium	13, LQ	0	0	0	0	0	0	0	0
			Anomia simplex		0	0	0	0	0	0	0	0
			Pododesmus rudis		0	0	0	0	0	0	0	0
			Crassostrea virginica		0	0	0	0	0	0	0	0
			Mulinia lateralis	OP	0			0	0		0	0
					-	0	0	-		0		
			Tagelus sp.	PS, EQ?	0	0	0	0	0	0	0	0
			Macoma tenta		0	0	0	0	0	0	0	0
			Tellinidae (LPIL)	0.5	0	0	0	0	0	0	0	0
			Gemma gemma	OP DO 50	0	0	0	0	2	0	0	0
			Mercenaria mercenaria	PS, EQ	0	0	0	0	0	0	0	0

TABLE D-9 2010 Benthic Invertebrate Sampling Results SWMU 3 Benthic Invertebrate Evaluation Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

					LW03-SD543	LW03-SD544	LW03-SD545	LW03-SD546	LW03-SD547	LW03-SD548	LW03-SD549	LW03-SD550-01
Phylum	Class	Order	Taxon	Pollution	LW03-SD543-00-10C	LW03-SD544-00-10C	LW03-SD545-00-10C	LW03-SD546-00-10C	LW03-SD547-00-10C	LW03-SD548-00-10C	LW03-SD549-00-10C	LW03-SD550-01-10C
Pilylulli	Class	Order	Taxon	Classification <sup>1</sup>	Offshore	Dry Dock	Offshore	Offshore	Near Shore	Offshore	Offshore	Offshore
					09/01/2010	09/01/2010	09/01/2010	09/01/2010	09/07/2010	09/09/2010	09/09/2010	09/08/2010
			Veneridae (LPIL)		0	0	0	0	13	0	0	0
			Bivalvia (LPIL)		0	0	0	0	0	0	0	0
Phoronida												
			Phoronida (LPIL)		0	0	0	0	0	0	0	0
Chordata												
			Branchiostoma sp.		0	0	0	0	0	0	0	0
			Total Organisms		0	0	0	0	20	1	2	0
			Taxa Richness (Number of Taxa)		0	0	0	0	6	1	1	0
			Total Density (Number per Square Meter)		0	0	0	0	287	14	29	0
			Percent Contribution of Dominant Taxon						65.0	100	100	
			Density (No./Square Meter) Dominant Taxon						187	14	29	
			Percent Spionid Polychaetes						10.0	0.00	0.00	
			Percent Mediomastus and Capitella Polychaetes						0.00	0.00	0.00	
			Density of Pollution Tolerant Organisms						29	0	0	
			Percent Pollution Tolerant Organisms						10.0	0.00	0.00	
			Density of Pollution Sensitive Organisms						29	0	0	
			Percent Pollution Sensitive Organisms						10.0	0.00	0.00	
			Ratio Pollution Sensitive/ Pollution Tolerant						1.00			
			Shannon Diversity Index (Base e)						1.19	0.00	0.00	
			Shannon Diversity Index (Base 2)						1.72	0.00	0.00	
			Percent Amphipods						0.00	0.00	0.00	
			Percent Bivalves						75.0	0.00	0.00	
			Percent Deposit Feeders						10.0	0.00	0.00	

<sup>1 -</sup> Pollution classifications:

PS = Pollution Sensitive (Weisberg et al, 1997)
PI = Polution Indicator (Weisberg et al. 1997)
OP = Opportunistic (Ranasinghe et al. 1994)
EQ = Equlibrium (Ranasinghe et al. 1994)
? = Uncertanty due to taxonomic identification level

TABLE D-9
2010 Benthic Invertebrate Sampling Results
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

,					LW03-SD550-02	LW03-SD550-03	LW03-SD551	LW03-SD552	LW03-SD553	LW03-SD555	LW03-SD556	LW03-SD557
				Pollution	LW03-SD550-02-10C		LW03-SD551-00-10C	LW03-SD552-00-10C	LW03-SD553-00-10C	LW03-SD555-00-10C		LW03-SD557-00-10C
Phylum	Class	Order	Taxon	Classification <sup>1</sup>	Offshore	Offshore	Offshore	Offshore	Near Shore	Offshore	Offshore	Offshore
				Ciassilication	09/08/2010	09/08/2010	09/08/2010	09/07/2010	09/07/2010	09/09/2010	09/08/2010	09/08/2010
Dovitoro			<u> </u>		07/00/2010	07/00/2010	07/00/2010	07/07/2010	07/07/2010	07/07/2010	07/00/2010	07/00/2010
Porifera			Desifere (LDIII)		Λ	0	0	0	Λ	0		
0.11.1			Porifera (LPIL)		U	0	0	0	U	U	0	0
Cnidaria	ļ l										<del>                                     </del>	ļ
	Hydrozo	a	(101)		0	0	2		0	2		
			Hydrozoa (LPIL)		0	0	0	0	0	0	0	0
	Anthozo	a								_		
			Actiniaria (LPIL)		0	0	0	0	0	0	0	0
			Actiniaria sp. A		0	0	0	0	0	0	0	0
			Anthozoa (LPIL)		0	0	0	0	0	0	0	0
Nemertea											<u> </u>	
			Nemertea (LPIL)		0	0	0	0	0	0	0	0
Annelida												
	Polycha	eta									<u> </u>	
			Dorvillea (Schistomeringos) rudolphi		0	0	0	0	0	0	0	0
			Marphysa sanguinea		0	0	0	0	1	0	0	0
			Glycera dibranchiata		0	0	0	0	0	0	0	0
			Ophioglycera sp.		0	0	0	0	0	0	0	0
			Glycinde solitaria	PS, OP	0	0	0	0	1	0	0	0
			Gyptis crypta		0	0	0	0	0	0	0	0
			Hesionidae (LPIL)		0	0	0	0	1	0	0	0
			Podarke obscura		0	0	0	0	0	0	0	0
			Laeonereis culveri		0	0	0	0	0	0	0	0
			Neanthes succinea	PI, OP	0	0	0	0	0	0	0	0
			Nereididae (LPIL)		0	0	0	0	0	0	0	0
			Platynereis dumerilii		0	0	0	0	0	0	0	0
			Diopatra cuprea	PS, EQ	0	0	0	0	0	0	0	0
			Phyllodoce mucosa	·	0	0	0	0	0	0	0	0
			Phyllodocidae (LPIL)		0	0	0	0	0	0	0	0
			Syllidae (LPIL)		0	0	0	0	0	0	0	0
			Ampharetidae (LPIL)		0	0	0	0	0	0	0	0
			Spiochaetopterus costarum	PS	0	0	0	0	0	0	0	0
			Aphelochaeta sp.	-	0	0	0	0	0	0	0	0
			Cirratulidae (LPIL)		0	0	0	0	0	0	0	0
			Tharyx sp.		0	0	0	0	0	0	0	0
			Pectinaria gouldii		0	0	0	0	0	0	0	0
			Pectinaria sp.		0	0	0	0	0	0	0	0
			Demonax microphthalmus		0	0	0	0	0	0	0	0
			Sabellidae (LPIL)		0	0	0	0	0	0	0	0
			Sabellinae (LPIL)		0	0	0	0	0	0	0	0
	1		Hydroides dianthus		0	0	0	0	0	0	0	0
	1		Hydroides diathus		0	0	0	0	0	0	0	0
	+		Hydroides sp.		0	0	0	0	1	0	0	0
			Serpulidae (LPIL)		0	0	0	0	0	0	0	0
	+ +				0	0	0	0	Ŭ	0	0	
			Dipolydora cauleri		U	U	U	U	0	U	<u>U</u>	0

TABLE D-9
2010 Benthic Invertebrate Sampling Results
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

	, ,		ek, Virginia Beach, Virginia		LW03-SD550-02	LW03-SD550-03	LW03-SD551	LW03-SD552	LW03-SD553	LW03-SD555	LW03-SD556	LW03-SD557
				Pollution	LW03-SD550-02-10C		LW03-SD551-00-10C		LW03-SD553-00-10C		LW03-SD556-00-10C	
Phylum	Class	Order	Taxon	Classification <sup>1</sup>	Offshore	Offshore	Offshore	Offshore	Near Shore	Offshore	Offshore	Offshore
				Classification	09/08/2010	09/08/2010	09/08/2010	09/07/2010	09/07/2010	09/09/2010	09/08/2010	09/08/2010
			Marenzelleria viridis	PS	0	0	0	0	0	0	0	0
			Paraprionospio pinnata	PI, OP	0	0	1	0	1	1	0	0
			Polydora cornuta	PI, OP	0	0	1	0	0	0	0	0
			Pseudopolydora sp.		0	0	0	0	0	0	0	0
			Scolelepis texana		0	0	0	0	0	0	0	0
			Spio sp.		0	0	0	0	0	0	0	0
			Spionidae (LPIL)		0	0	0	0	0	0	0	0
			Streblospio benedicti	PI, OP	1	0	1	0	0	12	3	0
			Loimia medusa	PS	0	0	0	0	0	0	0	0
			Loimia sp.		0	0	0	0	1	0	0	0
			Pista cristata		0	0	0	0	0	0	0	0
			Terebellidae (LPIL)		0	0	0	0	1	0	0	0
			Capitella capitata complex Blake	PI, OP	0	0	0	0	1	0	0	0
			Capitella jonesi	PI, OP	0	0	0	0	0	0	0	0
			Capitella sp.	PI, OP	0	0	0	0	0	0	0	0
			Capitellidae (LPIL)	.,,	0	0	0	0	0	0	0	0
			Heteromastus filiformis	PI, OP	0	0	0	0	1	0	0	0
			Mediomastus ambiseta	PS, PI, OP	0	0	0	0	0	0	0	0
			Mediomastus californiensis		0	0	0	0	0	0	0	0
			Mediomastus sp.		0	0	0	0	0	0	0	0
			Orbiniidae (LPIL)		0	0	0	0	0	0	0	0
			Scoloplos rubra		0	0	0	0	0	0	0	0
			Clymenella torquata	PS, EQ	0	0	0	0	0	0	0	0
	Clitellat	a	.,			-			-		-	
			Paranais frici		0	0	0	0	0	0	0	0
			Tubificoides sp.		0	0	0	0	0	0	0	0
Arthropoda			·									
	Malacos	straca										
		Amphipo										
			Aoridae (LPIL)		0	0	0	0	0	0	0	0
			Monocorophium acherusicum		0	0	0	0	0	0	0	0
			Monocorophium insidiosum		0	0	0	0	0	0	0	0
			Monocorophium sp.		0	0	0	0	0	0	0	0
			Listriella clymenellae	PS	0	0	0	0	0	0	0	0
		Cumacea										
			Cumacea (LPIL)		0	0	0	0	0	0	0	0
		Decapoo										
			Palaemonetes sp.		0	0	0	0	0	0	0	0
			Panopeidae (LPIL)		0	0	0	0	0	0	0	0
			Panopeus herbstii		0	0	0	0	0	0	0	0
			Rhithropanopeus harrisii		0	0	0	0	0	0	0	0
			Pinnixa sp.		0	0	0	0	0	0	0	0
			Callinectes sp.		0	0	0	0	0	0	0	0
			Portunidae (LPIL)		0	0	0	0	0	0	0	0

TABLE D-9
2010 Benthic Invertebrate Sampling Results
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

,					LW03-SD550-02	LW03-SD550-03	LW03-SD551	LW03-SD552	LW03-SD553	LW03-SD555	LW03-SD556	LW03-SD557
			_	Pollution	LW03-SD550-02-10C	LW03-SD550-03-10C	LW03-SD551-00-10C	LW03-SD552-00-10C	LW03-SD553-00-10C	LW03-SD555-00-10C	LW03-SD556-00-10C	LW03-SD557-00-10C
Phylum	Class	Order	Taxon	Classification <sup>1</sup>	Offshore	Offshore	Offshore	Offshore	Near Shore	Offshore	Offshore	Offshore
				Olassilleation	09/08/2010	09/08/2010	09/08/2010	09/07/2010	09/07/2010	09/09/2010	09/08/2010	09/08/2010
			Decapoda (LPIL)		0	0	0	0	0	0	0	1
			Decapoda zoea (larva)		0	2	0	0	0	0	2	1
		Leptostra			0		<u> </u>		Ŭ	Ŭ		'
		Loptooti	Leptostraca (LPIL)		0	0	0	0	0	0	0	0
		Mysida	Echiositada (El 12)		0	0	0	•	Ŭ	Ŭ		O O
		Mysiaa	Americamysis sp.		Λ	0	0	0	0	n	0	0
			Mysidae (LPIL)		0	0	0	0	0	0	1	0
			Neomysis americana		0	0	0	0	0	0	0	1
		Stomato			U	U	U	U	U	U	U	l
		Stomato	Squilla empusa	PS, EQ	0	0	0	0	0	0	1	0
	Maxillop	odo	Squilla empusa	P3, EQ	U	U	U	U	U	U	l I	U
	IVIAXIIIO	Sessilia										
		Sessina	Balanus improvisus		0	0	^	0	0	0	0	0
			Balanomorpha (LPIL)		0	0	0	0	0	0	0	0
	F4	.41	Balanomorpha (LPIL)		U	U	U	U	U	U	U	U
	Entogna	itna	Oallandada (LDIII)		0	0	0	0	0		0	0
		<b>C</b> 1	Collembola (LPIL)		0	0	0	0	0	0	0	0
	Unspeci	fied	0 ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( (									
			Crustacea (LPIL)		0	0	0	0	1	0	0	0
Mollusca												
	Gastrop	oda										
			Acteocina canaliculata	PS	0	0	0	0	1	0	0	0
			Acteocina sp.		0	0	0	0	0	0	0	0
			Odostomia engonia		0	0	0	0	0	0	0	0
			Turbonilla interrupta		0	0	0	0	0	0	0	0
			Astyris lunata		0	0	0	0	0	0	0	0
			Nassarius vibex		0	0	0	0	0	0	0	0
			Pyrgocythara plicosa		0	0	0	0	1	0	0	0
			Crepidula fornicata		0	0	0	0	0	0	0	0
			Crepidula plana		0	0	0	0	0	0	0	0
			Cerithiopsis greenii		0	0	0	0	0	0	0	0
			Epitonium rupicola		0	0	0	0	0	0	0	0
			Gastropoda (LPIL)		0	0	0	0	0	0	0	0
	Bivalvia											
			Anadara transversa	PS, EQ	0	0	0	0	0	0	0	0
			Amygdalum papyrium		0	0	0	0	0	0	0	0
			Anomia simplex		0	0	0	0	1	0	0	0
			Pododesmus rudis		0	0	0	0	0	0	0	0
			Crassostrea virginica		0	0	0	0	0	0	0	0
			Mulinia lateralis	OP	0	0	0	0	0	0	0	0
			Tagelus sp.	PS, EQ?	0	0	0	0	1	0	0	0
			Macoma tenta	-,	0	0	0	0	0	0	0	0
			Tellinidae (LPIL)		0	0	0	0	0	0	0	0
			Gemma gemma	OP	0	0	0	0	1	0	0	0
			Mercenaria mercenaria	PS, EQ	0	0	0	0	0	0	0	0

TABLE D-9 2010 Benthic Invertebrate Sampling Results SWMU 3 Benthic Invertebrate Evaluation Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

					LW03-SD550-02	LW03-SD550-03	LW03-SD551	LW03-SD552	LW03-SD553	LW03-SD555	LW03-SD556	LW03-SD557
Dhylum	Class	Order	Taxon	Pollution	LW03-SD550-02-10C	LW03-SD550-03-10C	LW03-SD551-00-10C	LW03-SD552-00-10C	LW03-SD553-00-10C	LW03-SD555-00-10C	LW03-SD556-00-10C	LW03-SD557-00-10C
Phylum	Class	Order	Taxon	Classification <sup>1</sup>	Offshore	Offshore	Offshore	Offshore	Near Shore	Offshore	Offshore	Offshore
					09/08/2010	09/08/2010	09/08/2010	09/07/2010	09/07/2010	09/09/2010	09/08/2010	09/08/2010
			Veneridae (LPIL)		0	0	0	0	4	0	0	0
			Bivalvia (LPIL)		0	0	0	0	0	0	0	0
Phoronida												
			Phoronida (LPIL)		0	0	0	0	1	0	0	0
Chordata												
			Branchiostoma sp.		0	0	0	0	0	0	0	0
			Total Organisms		1	2	3	0	20	13	7	3
			Taxa Richness (Number of Taxa)		1	1	3	0	17	2	4	3
			Total Density (Number per Square Meter)		14	29	43	0	287	187	101	43
			Percent Contribution of Dominant Taxon		100	100	33.3		20.0	92.3	42.9	33.3
			Density (No./Square Meter) Dominant Taxon		14	29	14		57	172	43	14
			Percent Spionid Polychaetes		100	0.00	100		5.00	100	42.9	0.00
			Percent Mediomastus and Capitella Polychaetes		0.00	0.00	0.00		10.0	0.00	0.00	0.00
			Density of Pollution Tolerant Organisms		14	0	43		43	187	43	0
			Percent Pollution Tolerant Organisms		100	0.00	100		15.0	100	42.9	0.00
			Density of Pollution Sensitive Organisms		0	0	0		43	0	14	0
			Percent Pollution Sensitive Organisms		0.00	0.00	0.00		15.0	0.00	14.3	0.00
			Ratio Pollution Sensitive/ Pollution Tolerant		0.00		0.00		1.00	0.00	0.33	
			Shannon Diversity Index (Base e)		0.00	0.00	1.10		2.78	0.27	1.28	1.10
			Shannon Diversity Index (Base 2)		0.00	0.00	1.59		4.01	0.39	1.84	1.59
			Percent Amphipods		0.00	0.00	0.00		0.00	0.00	0.00	0.00
			Percent Bivalves		0.00	0.00	0.00		35.0	0.00	0.00	0.00
			Percent Deposit Feeders		50.0	0.00	50.0		18.2	50.0	21.4	0.00

<sup>1 -</sup> Pollution classifications:

PS = Pollution Sensitive (Weisberg et al, 1997)
PI = Polution Indicator (Weisberg et al. 1997)
OP = Opportunistic (Ranasinghe et al. 1994)
EQ = Equlibrium (Ranasinghe et al. 1994)
? = Uncertanty due to taxonomic identification level

, , , , , , , , , , , , , , , , , , ,		o Entiro Oroco	k, Virginia Beach, Virginia		LW03-SD558-01	LW03-SD558-02	LW03-SD558-03	LW03-SD559	LW03-SD562	LW03-SD563	LW03-SD564	LW03-SD567
				Pollution	LW03-SD558-01-10C		LW03-SD558-03-10C	LW03-SD559-00-10C	LW03-SD562-00-10C	LW03-SD563-00-10C	LW03-SD564-00-10C	LW03-SD567-00-10C
Phylum	Class	Order	Taxon	Classification <sup>1</sup>	Offshore	Offshore	Offshore	Near Shore	Offshore	Offshore	Offshore	Offshore
				Ciassification	09/08/2010	09/08/2010	09/08/2010	09/07/2010	09/08/2010	09/08/2010	09/08/2010	09/08/2010
Porifera					07/00/2010	07/00/2010	07/00/2010	07/07/2010	07/00/2010	07/00/2010	07/00/2010	07/00/2010
Pornera			Porifera (LPIL)		0	0	0	1	0	0	0	0
Cnidaria			Politera (LPIL)		U	U	U	l l	U	U	U	U
Chidaria	Usalana											
	Hydrozo	Da	Hydrozoa (LPIL)		0	0	0	0	0	0	0	0
	A náb a na		Hydrozoa (LPIL)		U	U	U	U	0	U	U	0
	Anthozo	Da	Actiniaria (LDIL)		0	0	0	0	0	^	0	0
			Actiniaria (LPIL)		, , , , , , , , , , , , , , , , , , ,	, and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second	0	0	ŭ .	0		Ŭ
			Actiniaria sp. A		0	0	<u> </u>	0	0	0	0	0
Managataa			Anthozoa (LPIL)		0	0	0	0	0	U	0	0
Nemertea			Namenta a /I DII \		0	0	0	0	0	0	0	0
A !! .! .			Nemertea (LPIL)		0	0	0	0	0	0	0	0
Annelida	Debiel-	oto										
	Polycha	ieta	Dan illa a (Cabiatana airana a) mudalabi		0	0	0	0	0	0	0	0
			Dorvillea (Schistomeringos) rudolphi		0	0	0	0	0	0	0	0
			Marphysa sanguinea		0	0	0	0	0	0	0	0
			Glycera dibranchiata		0	0	0	0	0	0	0	0
			Ophioglycera sp.	DO 00	0	0	0	0	0	0	0	0
			Glycinde solitaria	PS, OP	0	0	0	0	0	0	0	0
			Gyptis crypta		0	0	0	0	0	0	0	0
			Hesionidae (LPIL)		0	0	0	0	0	0	0	0
			Podarke obscura		0	0	0	0	0	0	0	0
			Laeonereis culveri		0	0	0	0	0	0	0	0
			Neanthes succinea	PI, OP	1	0	0	0	0	0	0	0
			Nereididae (LPIL)		0	0	0	0	0	0	0	0
			Platynereis dumerilii		0	0	0	0	0	0	0	0
			Diopatra cuprea	PS, EQ	0	0	0	0	0	0	0	0
			Phyllodoce mucosa		0	0	0	0	0	0	0	0
			Phyllodocidae (LPIL)		0	0	0	0	0	0	0	0
			Syllidae (LPIL)		0	0	0	0	0	0	0	0
			Ampharetidae (LPIL)		0	0	0	0	0	0	0	0
			Spiochaetopterus costarum	PS	0	0	0	0	0	0	0	0
			Aphelochaeta sp.		0	0	0	0	0	0	0	0
			Cirratulidae (LPIL)		0	0	0	0	0	0	0	0
			Tharyx sp.		0	0	0	0	0	0	0	0
			Pectinaria gouldii		0	0	0	0	0	0	0	0
			Pectinaria sp.		0	0	0	0	0	0	0	0
			Demonax microphthalmus		0	0	0	0	0	0	0	0
			Sabellidae (LPIL)		0	0	0	0	0	0	0	0
			Sabellinae (LPIL)		0	0	0	0	0	0	0	0
· · · · · · · · · · · · · · · · · · ·			Hydroides dianthus		0	0	0	0	0	0	0	0
			Hydroides diathus		0	0	0	0	0	0	0	0
			Hydroides sp.		0	0	0	0	0	0	0	0
			Serpulidae (LPIL)		0	0	0	0	0	0	0	0
			Dipolydora cauleri		0	0	0	0	0	0	0	0

TABLE D-9
2010 Benthic Invertebrate Sampling Results
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

, , , , , , , , , , , , , , , , , , ,			rk, Virginia Beach, Virginia		LW03-SD558-01	LW03-SD558-02	LW03-SD558-03	LW03-SD559	LW03-SD562	LW03-SD563	LW03-SD564	LW03-SD567
				Pollution		LW03-SD558-02-10C		LW03-SD559-00-10C			LW03-SD564-00-10C	LW03-SD567-00-10C
Phylum	Class	Order	Taxon	Classification <sup>1</sup>	Offshore	Offshore	Offshore	Near Shore	Offshore	Offshore	Offshore	Offshore
				Ciassification	09/08/2010	09/08/2010	09/08/2010	09/07/2010	09/08/2010	09/08/2010	09/08/2010	09/08/2010
			Marenzelleria viridis	PS	0	0	0	0	0	0	0	0
			Paraprionospio pinnata	PI, OP	0	0	0	1	0	0	0	0
				PI, OP	<u> </u>	0	0	0	0	0	0	0
			Polydora cornuta	PI, UP	0	0	0	0	0	0	0	0
			Pseudopolydora sp. Scolelepis texana		0	0	0	0	0	0	0	0
			Spio sp.		0	0	0	0	0	0	0	0
			Spio sp. Spionidae (LPIL)		0	0	0	0	0	0	0	0
			Streblospio benedicti	PI, OP	1	0	0	1	0	0		
					0	0		1		-	0	0
			Loimia medusa	PS	0	, and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second	0	0	0	0	0	0
			Loimia sp.		0	0	0	0	0	0	0	0
			Pista cristata Terebellidae (LPIL)		0	0	0	0	0	0	0	0
				DI OD	0	0	0	0	0	0	0	0
			Capitella capitata complex Blake	PI, OP	, , , , , , , , , , , , , , , , , , ,	0	0	Ů	0	0	0	, , , , , , , , , , , , , , , , , , ,
			Capitella jonesi	PI, OP PI, OP	0	0	0	0	0	0	0	0
			Capitella sp. Capitellidae (LPIL)	PI, UP	0	0	0	0	0	0	0	0
				PI, OP	0	0	0	0		0		0
			Heteromastus filiformis	PS, PI, OP	0	0	0	0	0	0	0	0
			Mediomastus ambiseta  Mediomastus californiensis	P3, PI, UP	0			0	0	0	0	0
						0	0	•		•	0	-
			Mediomastus sp.		0	0	0	0	0	0	0	0
			Orbiniidae (LPIL)		0	0	0	0	0	0	0	0
			Scoloplos rubra	DC FO	0	0	0	0	0	0	0	0
	Clitaliat		Clymenella torquata	PS, EQ	0	0	0	0	0	U	0	0
	Clitellata	a	Paranais frici		0	0	0	0	0	0	0	0
					0	0	0	0	0	0	0	0
A wthere we do			Tubificoides sp.		0	0	0	0	0	U	0	0
Arthropoda	Malacos	troop										
	Walacos	Amphipo	.da									
		Ampinpo	Aoridae (LPIL)		0	0	0	0	0	0	Λ	0
			Monocorophium acherusicum		0	0	0	0	0	0	0	0
+			Monocorophium insidiosum		0	0	0	0	0	0	0	0
+			Monocorophium sp.		0	0	0	0	0	0	0	0
+			Listriella clymenellae	PS	0	0	0	0	0	0	0	0
		Cumacea	2	гЭ	U	U	U	U	U	U	U	U
-		Guillace	Cumacea (LPIL)		0	0	0	0	0	0	0	0
+		Decapod			U	U	U	U	U	U	U	U
+		Decapoo	Palaemonetes sp.		0	0	0	0	0	0	0	0
+			Panopeidae (LPIL)		0	0	0	0	0	0	0	0
+			Panopeus herbstii		0	0	0	0	0	0	0	0
+			Rhithropanopeus harrisii		0	0	0	0	0	0	0	0
+			Pinnixa sp.		0	0	0	1	0	0	0	0
+			Callinectes sp.		0	0	0	0	0	0	0	0
			Portunidae (LPIL)			0	0	0	0	0	0	
			rututiiude (LML)		0	U	U	U	U	U	U	0

Unsp	Leptostr Mysida Stomato	Leptostraca (LPIL)  Americamysis sp.  Mysidae (LPIL)  Neomysis americana  poda	Pollution Classification <sup>1</sup>	LW03-SD558-01 LW03-SD558-01-10C Offshore 09/08/2010 0 0	Offshore 09/08/2010 0 0	LW03-SD558-03 LW03-SD558-03-10C Offshore 09/08/2010 0 0	LW03-SD559 LW03-SD559-00-10C Near Shore 09/07/2010 0	LW03-SD562 LW03-SD562-00-10C Offshore 09/08/2010 0	LW03-SD563 LW03-SD563-00-10C Offshore 09/08/2010 0	LW03-SD564 LW03-SD564-00-10C Offshore 09/08/2010 0	LW03-SD567 LW03-SD567-00-10C Offshore 09/08/2010 0
Maxil  Entog  Unsp	Leptostr Mysida Stomato	Decapoda (LPIL) Decapoda zoea (larva)  aca Leptostraca (LPIL)  Americamysis sp. Mysidae (LPIL) Neomysis americana		Offshore 09/08/2010 0 0 0	Offshore 09/08/2010 0 0	Offshore 09/08/2010 0 0	Near Shore 09/07/2010 0 0	Offshore 09/08/2010 0	Offshore 09/08/2010 0	Offshore 09/08/2010 0	Offshore 09/08/2010 0
Entog Unsp Mollusca	Mysida  Stomato	Decapoda zoea (larva)  aca Leptostraca (LPIL)  Americamysis sp. Mysidae (LPIL) Neomysis americana	Classification	09/08/2010 0 0 0	09/08/2010 0 0 0	09/08/2010 0 0	09/07/2010 0 0	09/08/2010 0	09/08/2010 0	09/08/2010 0	09/08/2010 0
Entog Unsp Mollusca	Mysida  Stomato	Decapoda zoea (larva)  aca Leptostraca (LPIL)  Americamysis sp. Mysidae (LPIL) Neomysis americana		0 0	0 0	0	0	0	0	0	0
Entog Unsp Mollusca	Mysida  Stomato	Decapoda zoea (larva)  aca Leptostraca (LPIL)  Americamysis sp. Mysidae (LPIL) Neomysis americana		0 0	0	0	0	·	U		, , ,
Entog Unsp Mollusca	Mysida  Stomato	Americamysis sp. Mysidae (LPIL) Neomysis americana		0	0	Ü	-	0	U	0	U
Entog Unsp Mollusca	Mysida  Stomato	Leptostraca (LPIL)  Americamysis sp.  Mysidae (LPIL)  Neomysis americana  poda		1	-	0	^			4	f
Entog Unsp Mollusca	Stomato	Americamysis sp. Mysidae (LPIL) Neomysis americana poda		1	-	U		1	0	0	0
Entog Unsp Mollusca	Stomato	Americamysis sp. Mysidae (LPIL) Neomysis americana poda		1			0	I	U	U	U
Entog Unsp Mollusca		Mysidae (LPIL) Neomysis americana poda		1	^	0	0	0	0	1	0
Entog Unsp Mollusca		Neomysis americana poda			0	0	0	0	0	1	0
Entog Unsp Mollusca		poda		0	0	0	0	0	0	0	0
Entog Unsp Mollusca				0	0	0	0	0	0		0
Entog Unsp Mollusca	villopoda		D0 F0	2		•			•		
Entog Unsp Mollusca	rvillanada	Squilla empusa	PS, EQ	0	0	0	0	0	0	0	0
Unsp											<del> </del>
Unsp	Sessilia			_							
Unsp		Balanus improvisus		0	0	0	0	0	0	0	0
Unsp		Balanomorpha (LPIL)		0	0	0	0	0	0	0	0
Mollusca	tognatha										
Mollusca		Collembola (LPIL)		0	0	0	0	0	0	0	0
	specified										
		Crustacea (LPIL)		0	0	0	0	0	0	0	0
Gastr											
	stropoda										
		Acteocina canaliculata	PS	0	0	0	0	0	0	0	0
		Acteocina sp.		0	0	0	0	0	0	0	0
		Odostomia engonia		0	0	0	0	0	0	0	0
		Turbonilla interrupta		0	0	0	0	0	0	0	0
		Astyris lunata		0	0	0	0	0	0	0	0
		Nassarius vibex		0	0	0	0	0	0	0	0
		Pyrgocythara plicosa		0	0	0	0	0	0	0	0
		Crepidula fornicata		0	0	0	0	0	0	0	0
		Crepidula plana		0	0	0	0	0	0	0	0
		Cerithiopsis greenii		0	0	0	0	0	0	0	0
		Epitonium rupicola		0	0	0	0	0	0	0	0
		Gastropoda (LPIL)		0	0	0	0	0	0	0	0
Bival	valvia	·									
		Anadara transversa	PS, EQ	0	0	0	0	0	0	0	0
		Amygdalum papyrium		0	0	0	0	0	0	0	0
		Anomia simplex		0	0	0	0	0	0	0	0
		Pododesmus rudis		0	0	0	0	0	0	0	0
		Crassostrea virginica		0	0	0	0	0	0	0	0
		Mulinia lateralis	OP	0	0	0	0	0	0	0	0
	•	Tagelus sp.	PS, EQ?	0	0	0	0	0	0	0	0
		Macoma tenta	,	0	0	0	0	0	0	0	0
		Tellinidae (LPIL)		0	0	0	0	0	0	0	0
		Gemma gemma	OP	0	0	0	0	0	0	0	0
		Mercenaria mercenaria	PS, EQ	0	0	<b>5</b>	0	<u> </u>	•	<u></u>	

### TABLE D-9

2010 Benthic Invertebrate Sampling Results SWMU 3 Benthic Invertebrate Evaluation

Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

					LW03-SD558-01	LW03-SD558-02	LW03-SD558-03	LW03-SD559	LW03-SD562	LW03-SD563	LW03-SD564	LW03-SD567
Phylum	Class	Order	Taxon	Pollution	LW03-SD558-01-10C	LW03-SD558-02-10C	LW03-SD558-03-10C	LW03-SD559-00-10C	LW03-SD562-00-10C	LW03-SD563-00-10C	LW03-SD564-00-10C	LW03-SD567-00-10C
Pilyluili	Class	Order	Taxon	Classification <sup>1</sup>	Offshore	Offshore	Offshore	Near Shore	Offshore	Offshore	Offshore	Offshore
					09/08/2010	09/08/2010	09/08/2010	09/07/2010	09/08/2010	09/08/2010	09/08/2010	09/08/2010
			Veneridae (LPIL)		0	0	0	0	0	0	0	0
			Bivalvia (LPIL)		0	0	0	0	0	0	0	0
Phoronida												
			Phoronida (LPIL)		0	0	0	0	0	0	0	0
Chordata												
			Branchiostoma sp.		0	0	0	0	0	0	0	0
		-										
			Total Organisms		3	0	0	4	1	0	2	0
			Taxa Richness (Number of Taxa)		3	0	0	4	1	0	2	0
			Total Density (Number per Square Meter)		43	0	0	57	14	0	29	0
			Percent Contribution of Dominant Taxon		33.3			25.0	100		50.0	
			Density (No./Square Meter) Dominant Taxon		14			14	14		14	
			Percent Spionid Polychaetes		33.3			50.0	0.00		0.00	
			Percent Mediomastus and Capitella Polychaetes		0.00			0.00	0.00		0.00	
			Density of Pollution Tolerant Organisms		29			29	0		0	
			Percent Pollution Tolerant Organisms		66.7			50.0	0.00		0.00	
			Density of Pollution Sensitive Organisms		0			0	0		0	
			Percent Pollution Sensitive Organisms		0.00			0.00	0.00		0.00	
			Ratio Pollution Sensitive/ Pollution Tolerant		0.00			0.00				
			Shannon Diversity Index (Base e)		1.10			1.39	0.00		0.69	
			Shannon Diversity Index (Base 2)		1.59			2.00	0.00		1.00	
			Percent Amphipods		0.00			0.00	0.00		0.00	
			Percent Bivalves		0.00			0.00	0.00		0.00	
			Percent Deposit Feeders		33.3			37.5	0.00		0.00	

<sup>1 -</sup> Pollution classifications:

PS = Pollution Sensitive (Weisberg et al, 1997)
PI = Polution Indicator (Weisberg et al. 1997)
OP = Opportunistic (Ranasinghe et al. 1994)
EQ = Equlibrium (Ranasinghe et al. 1994)
? = Uncertanty due to taxonomic identification level

Joint Expedit	lionary bas	e Little Cree	ek, Virginia Beach, Virginia		LW02 CDE71	1.14/02 CDE74	
				Dallastia.a	LW03-SD571	LW03-SD574	
Phylum	Class	Order	Taxon	Pollution	LW03-SD571-00-10C	LW03-SD574-00-10C	
,				Classification <sup>1</sup>	Offshore	Offshore	<b>-</b>
					09/08/2010	08/31/2010	Total
Porifera							
			Porifera (LPIL)		0	0	9
Cnidaria							
	Hydroz	oa					
			Hydrozoa (LPIL)		0	0	1
	Anthoz	oa					
			Actiniaria (LPIL)		0	0	50
			Actiniaria sp. A		0	0	1
			Anthozoa (LPIL)		0	0	1
Nemertea							
			Nemertea (LPIL)		0	0	12
Annelida							
	Polycha	eta					
			Dorvillea (Schistomeringos) rudolphi		0	0	9
			Marphysa sanguinea		0	0	4
			Glycera dibranchiata		0	0	2
			Ophioglycera sp.		0	0	1
			Glycinde solitaria	PS, OP	0	0	52
			Gyptis crypta		0	0	18
			Hesionidae (LPIL)		0	0	10
			Podarke obscura		0	0	44
			Laeonereis culveri		0	0	2
			Neanthes succinea	PI, OP	0	0	8
			Nereididae (LPIL)		0	0	18
			Platynereis dumerilii		0	0	3
			Diopatra cuprea	PS, EQ	0	0	1
			Phyllodoce mucosa		0	0	1
			Phyllodocidae (LPIL)		0	0	1
			Syllidae (LPIL)		0	0	1
			Ampharetidae (LPIL)		0	0	1
			Spiochaetopterus costarum	PS	0	0	33
			Aphelochaeta sp.		0	0	12
			Cirratulidae (LPIL)		0	0	21
			Tharyx sp.		0	0	12
			Pectinaria gouldii		0	0	8
			Pectinaria sp.		0	0	1
			Demonax microphthalmus		0	0	20
			Sabellidae (LPIL)		0	0	5
			Sabellinae (LPIL)		0	0	1
			Hydroides dianthus		0	0	6
			Hydroides diathus		0	0	5
			Hydroides sp.		0	0	10
			Serpulidae (LPIL)		0	0	2
			Dipolydora cauleri		0	0	2

TABLE D-9
2010 Benthic Invertebrate Sampling Results
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

			I		LW03-SD571	LW03-SD574	
				Pollution	LW03-SD571-00-10C	LW03-SD574-00-10C	
Phylum	Class	Order	Taxon	Classification <sup>1</sup>	Offshore	Offshore	
				Classification	09/08/2010	08/31/2010	Total
			Marana Haria di di	DC			
			Marenzelleria viridis	PS PL OP	0	0	2
			Paraprionospio pinnata	PI, OP	0	0	56
			Polydora cornuta	PI, OP	0	0	29
			Pseudopolydora sp.		0	0	3
			Scolelepis texana		0	0	1
			Spio sp.		0	0	3
			Spionidae (LPIL)	51.05	0	0	2
			Streblospio benedicti	PI, OP	0	0	97
			Loimia medusa	PS	0	0	4
			Loimia sp.		0	0	6
			Pista cristata		0	0	7
			Terebellidae (LPIL)		0	0	12
			Capitella capitata complex Blake	PI, OP	0	0	145
			Capitella jonesi	PI, OP	0	0	9
			Capitella sp.	PI, OP	0	0	1
			Capitellidae (LPIL)		0	0	2
			Heteromastus filiformis	PI, OP	0	0	9
			Mediomastus ambiseta	PS, PI, OP	0	0	32
			Mediomastus californiensis		0	0	1
			Mediomastus sp.		0	0	39
			Orbiniidae (LPIL)		0	0	1
			Scoloplos rubra		0	0	3
			Clymenella torquata	PS, EQ	0	0	2
	Clitellat	a					
			Paranais frici		0	0	1
			Tubificoides sp.		0	0	28
Arthropoda							
	Malacos						
		Amphipo					
			Aoridae (LPIL)		0	0	2
			Monocorophium acherusicum		0	0	2
			Monocorophium insidiosum		0	0	1
			Monocorophium sp.		0	0	13
			Listriella clymenellae	PS	0	0	1
		Cumace					
			Cumacea (LPIL)		0	0	1
		Decapoo					
			Palaemonetes sp.		0	0	1
			Panopeidae (LPIL)		0	0	2
			Panopeus herbstii		0	0	1
			Rhithropanopeus harrisii		0	0	3
			Pinnixa sp.		0	0	1
			Callinectes sp.		0	0	1
			Portunidae (LPIL)		0	0	1

TABLE D-9
2010 Benthic Invertebrate Sampling Results
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

, , , , , , , , , , , , , , , , , , , ,	l		r, viigiilia beacii, viigiilia		LW03-SD571	LW03-SD574	
				Pollution	LW03-SD571-00-10C	LW03-SD574-00-10C	
Phylum	Class	Order	Taxon	Classification <sup>1</sup>	Offshore	Offshore	
				Classification	09/08/2010	08/31/2010	Total
	]		Daniela (LDIII)	<u> </u>			
			Decapoda (LPIL)		0	0	4
			Decapoda zoea (larva)		0	0	7
		Leptostr					-
			Leptostraca (LPIL)		0	0	1
		Mysida					•
			Americamysis sp.		0	0	2
			Mysidae (LPIL)		0	0	2
		2	Neomysis americana		0	0	2
		Stomato		20.50			
			Squilla empusa	PS, EQ	0	0	1
	Maxillo						
		Sessilia	D.I. i				
			Balanus improvisus		0	0	7
			Balanomorpha (LPIL)		0	0	4
	Entogna	atha	0.11.1.1.10.11				
			Collembola (LPIL)		0	0	1
	Unspec	itied	(1911)				
			Crustacea (LPIL)		0	0	1
Mollusca							
	Gastrop	oda				_	
			Acteocina canaliculata	PS	0	0	15
			Acteocina sp.		0	0	1
			Odostomia engonia		0	0	2
			Turbonilla interrupta		0	0	1
			Astyris lunata		0	0	1
			Nassarius vibex		0	0	3
			Pyrgocythara plicosa		0	0	6
			Crepidula fornicata		0	0	48
			Crepidula plana		0	0	4
			Cerithiopsis greenii		0	0	1
			Epitonium rupicola		0	0	1
			Gastropoda (LPIL)		0	0	4
	Bivalvia	l					
			Anadara transversa	PS, EQ	0	0	2
			Amygdalum papyrium		0	0	2
			Anomia simplex		0	0	5
			Pododesmus rudis		0	0	2
			Crassostrea virginica		0	0	2
			Mulinia lateralis	OP DO FOR	0	0	8
			Tagelus sp.	PS, EQ?	0	0	5
			Macoma tenta		0	0	4
			Tellinidae (LPIL)		0	0	9
			Gemma gemma	OP	0	0	153
			Mercenaria mercenaria	PS, EQ	0	0	11

					LW03-SD571	LW03-SD574	
Phylum	Class	Order	Taxon	Pollution	LW03-SD571-00-10C	LW03-SD574-00-10C	
Filylulli	Class	Oluei	Taxon	Classification <sup>1</sup>	Offshore	Offshore	
					09/08/2010	08/31/2010	Total
			Veneridae (LPIL)		0	0	103
			Bivalvia (LPIL)		0	0	16
Phoronida							
			Phoronida (LPIL)		0	0	152
Chordata							
			Branchiostoma sp.		0	0	3
						_	
			Total Organisms		0	0	1,509
			T 811 (1) (T				
			Taxa Richness (Number of Taxa)		0	0	
			Total Density (Number per Square Meter)		0	0	
			Percent Contribution of Dominant Taxon				
			Density (No./Square Meter) Dominant Taxon				
			Percent Spionid Polychaetes Percent Mediomastus and Capitella Polychaetes				
			Density of Pollution Tolerant Organisms				
			Percent Pollution Tolerant Organisms				
			Density of Pollution Sensitive Organisms		<del></del>		
			Percent Pollution Sensitive Organisms				
			Ratio Pollution Sensitive/ Pollution Tolerant				
			Tradio I dilation dell'altro, I dilation I didiani				
			Shannon Diversity Index (Base e)				
			Shannon Diversity Index (Base 2)				
			Percent Amphipods				
			Percent Bivalves				
			Percent Deposit Feeders				

<sup>1 -</sup> Pollution classifications:

- PS = Pollution Sensitive (Weisberg et al, 1997) PI = Polution Indicator (Weisberg et al. 1997)
- OP = Opportunistic (Ranasinghe et al. 1994)
- EQ = Equlibrium (Ranasinghe et al. 1994)
  ? = Uncertanty due to taxonomic identification level

#### TABLE D-10

Assessment Endpoints, Risk Hypotheses, and Measurement Endpoints SWMU 3 Benthic Invertebrate Evaluation

Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

Assessment Endpoint	Risk Hypothesis	Measurement Endpoint	Receptor
Relative health of benthic invertebrate	Are site-related chemical concentrations in sediment sufficient to	Comparison of chemical concentrations in sediment with site-specific PRGs	
communities	adversely effect benthic invertebrate communities?	Intra-site comparison of benthic invertebrate metric values calculated using site-specific 2010 benthic invertebrate sampling data	Benthic invertebrates

TABLE D-11
Surface Sediment Screening for SWMU 3 COCs - 2010 Samples
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

<u> </u>		ginia Beach,	Virginia	Percent	Copper		Lead		Nickel		Tin		Zinc				1		Percent	
Sample	Date	Grid	Area	ABM	(MG/KG)	RQ	(MG/KG)	RQ	(MG/KG)	RQ	(MG/KG)	RQ	(MG/KG)	RQ	Average RQ	Fails RQ?	Reason for Failure	ABM > 1%?	ABM	Classification
LW03-SD538-00-10C	9/1/2010	538	Dry Dock	1.0	165	0.71	50.1	0.47	25.4	0.96	9.48	0.85	313	0.76	0.75	NO		NO		Unimpacted
LW03-SD539-00-10C	9/1/2010	539	Dry Dock	0.5	206	0.89	40.4	0.38	28.8	1.09	10.7	0.96	349	0.85	0.83	NO		NO		Unimpacted
LW03-SD544-00-10C	9/1/2010	544	Dry Dock	0.5	156	0.67	45.5	0.43	27.2	1.03	8.46	0.76	267	0.65	0.71	NO		NO		Unimpacted
LW03-SD513-00-10C	9/10/2010	513	Marina	1.5	71.7	0.31	64.6	0.60	11.5	0.43	9.33	0.83	232	0.57	0.55	NO		YES	1.50	Possibly impacted
LW03-SD514-00-10C	9/10/2010	514	Marina	1.2	241	1.04	243	2.27	22.0	0.83	18.5	1.65	473	1.15	1.39	YES	Pb, Sn, Avg	YES	1.20	Impacted
LW03-SD515-00-10C	9/9/2010	515	Marina	5.0	221	0.95	123	1.15	18.1	0.68	12.8	1.14	395	0.96	0.98	NO		YES	5.00	Possibly impacted
LW03-SD519-00-10C	9/2/2010	519	Marina	0.4	112	0.48	52.4	0.49	17.3	0.65	9.78	0.87	240	0.59	0.62	NO		NO		Unimpacted
LW03-SD520-00-10C	9/10/2010	520	Marina	1.5	385	1.66	177	1.65	29.2	1.10	19.7	1.76	602	1.47	1.53	YES	Cu, Pb, Sn, Avg	YES	1.50	Impacted
LW03-SD521-00-10C	9/12/2010	521	Marina	5.0	367	1.58	209	1.95	30.6	1.15	16.7	1.49	711	1.73	1.58	YES	Cu, Pb, Zn, Avg	YES	5.00	Impacted
LW03-SD522-00-10C	9/9/2010	522	Marina	9.0	300	1.29	317	2.96	22.6	0.85	25.8	2.30	699	1.70	1.82	YES	Pb, Sn, Zn, Avg	YES	9.00	Impacted
LW03-SD525-00-10C	9/2/2010	525	Marina	0.6	179	0.77	54.5	0.51	22.7	0.86	7.86	0.70	281	0.69	0.70	NO		NO		Unimpacted
LW03-SD526-00-10C	9/10/2010	526	Marina	0.01	214	0.92	68.2	0.64	25.8	0.97	10.1	0.90	374	0.91	0.87	NO		NO		Unimpacted
LW03-SD527-00-10C	9/12/2010	527	Marina	2.0	271	1.17	201	1.88	24.4	0.92	14.4	1.29	500	1.22	1.29	YES	Pb, Avg	YES	2.00	Impacted
LW03-SD530-00-10C	9/2/2010	530	Marina	0.6	169	0.73	53.3	0.50	33.0	1.25	9.49	0.85	291	0.71	0.81	NO		NO		Unimpacted
LW03-SD501-00-10C	9/2/2010	501	Near Shore	0.1	38.7	0.17	45.0	0.42	3.44	0.13	3.79	0.34	62.3	0.15	0.24	NO		NO		Unimpacted
LW03-SD502-00-10C	9/2/2010	502	Near Shore	0.2	30.2	0.13	16.5	0.15	16.6	0.63	5.52	0.49	100	0.24	0.33	NO		NO		Unimpacted
LW03-SD503-00-10C	9/2/2010	503	Near Shore	0.1	40.4	0.17	52.6	0.49	5.01	0.19	4.44	0.40	86.3	0.21	0.29	NO		NO		Unimpacted
LW03-SD504-00-10C	8/31/2010	504	Near Shore	0.25	107	0.46	44.5	0.42	10.8	0.41	5.50	0.49	172	0.42	0.44	NO		NO		Unimpacted
LW03-SD504A-00-10C	8/31/2010	504A	Near Shore	0.5	142	0.61	47.1	0.44	17.5	0.66	6.18	0.55	226	0.55	0.56	NO		NO		Unimpacted
LW03-SD505-00-10C	8/31/2010	505	Near Shore	1.0	74.3	0.32	46.4	0.43	12.4	0.47	13.6	1.21	160	0.39	0.57	NO		NO		Unimpacted
LW03-SD506-00-10C	9/10/2010	506	Near Shore	2.0	18.6	0.08	21.2	0.20	3.63	0.14	4.25	0.38	87.4	0.21	0.20	NO		YES	2.00	Possibly impacted
LW03-SD507-00-10C	9/2/2010	507	Near Shore	0.05	27.0	0.12	21.5	0.20	5.10	0.19	6.01	0.54	68.0	0.17	0.24	NO	 DI 4	NO		Unimpacted
LW03-SD508-00-10C	9/10/2010	508	Near Shore	0.5	239	1.03	180	1.68	17.1	0.65	12.3	1.10	373	0.91	1.07	YES	Pb, Avg	NO		Possibly impacted
LW03-SD509-00-10C	9/9/2010	509	Near Shore	20	168	0.72	202	1.89	13.6	0.51	12.4	1.11	239	0.58	0.96	YES	Pb	YES	20.0	Impacted
LW03-SD516-00-10C	9/9/2010	516	Near Shore	50	1,400	6.03	1,050	9.81	298	11.2	300	26.8	4,850	11.8	13.1	YES	All	YES	50.0	Impacted
LW03-SD523-00-10C	9/9/2010	523	Near Shore	35 15	2,450 935	10.6	2,020	18.9	661	24.9	561	50.1	8,990	21.9	25.3	YES	All All	YES	35.0	Impacted
LW03-SD529-00-10C LW03-SD534-00-10C	9/9/2010 9/1/2010	529 534	Near Shore	15 4.0	615	4.U3	399 538	3.73 5.03	169 46.3	6.38	151 45.4	13.5	1,600 711	3.90	6.30 3.04	YES YES	All	YES	15.0 4.00	Impacted
LW03-SD535-00-10C	9/1/2010	535	Near Shore Near Shore	20	431	2.00 1.04	253	2.36	55.5	2.09	31.3	4.05 2.79	886	2.16	2.25	YES	All	YES YES	20.0	Impacted
LW03-SD535-00-10C	9/1/2010	541	Near Shore	15	460	1.00	205	1.92	56.1	2.09	38.4	3.43	1,700	4.15	2.72	YES	ΑII	YES	15.0	Impacted Impacted
LW03-SD547-00-10C	9/7/2010	547	Near Shore	22	525	2.26	129	1.72	29.8	1.12	22.5	2.01	687	1.68	1.66	YES	Cu, Sn, Zn, Avg	YES	22.0	Impacted
LW03-SD553-00-10C	9/7/2010	553	Near Shore	30	212	0.91	69.5	0.65	26.3	0.99	14.7	1.31	469	1.14	1.00	YES	Avg	YES	30.0	Impacted
LW03-SD559-00-10C	9/7/2010	559	Near Shore	18	127	0.55	140	1.31	15.6	0.59	6.66	0.59	302	0.74	0.76	NO	Avy 	YES	18.0	Possibly impacted
LW03-SD510-00-10C	8/31/2010	510	Offshore	0.5	93.6	0.40	38.5	0.36	16.6	0.63	6.05	0.54	187	0.46	0.48	NO		NO		Unimpacted
LW03-SD511-00-10C	8/31/2010	511	Offshore	0.8	97.4	0.42	66.3	0.62	18.5	0.70	14.0	1.25	248	0.60	0.72	NO		NO		Unimpacted
LW03-SD512-00-10C	9/2/2010	512	Offshore	0.3	96.3	0.42	69.0	0.64	16.5	0.62	13.3	1.19	243	0.59	0.69	NO		NO		Unimpacted
LW03-SD517-00-10C	8/31/2010	517	Offshore	0.25	245	1.06	58.1	0.54	25.7	0.97	9.08	0.81	328	0.80	0.84	NO		NO		Unimpacted
LW03-SD518-00-10C	8/31/2010	518	Offshore	0.2	173	0.75	61.9	0.58	24.1	0.91	7.50	0.67	293	0.71	0.72	NO		NO		Unimpacted
LW03-SD528-00-10C	9/9/2010	528	Offshore	No data	323	1.39	250	2.34	33.6	1.27	27.9	2.49	616	1.50	1.80	YES	Pb, Sn, Zn, Avg		No data	Impacted
LW03-SD533-00-10C	9/1/2010	533	Offshore	5.0	237	1.02	167	1.56	52.2	1.97	34.2	3.05	673	1.64	1.85	YES	All but Cu	YES	5.00	Impacted
LW03-SD537-00-10C	9/1/2010	537	Offshore	3.0	231	1.00	179	1.67	27.8	1.05	15.5	1.38	1,030	2.51	1.52	YES	Pb, Zn, Avg	YES	3.00	Impacted
LW03-SD540-00-10C	9/1/2010	540	Offshore	4.0	334	1.44	238	2.22	63.0	2.38	40.0	3.57	852	2.08	2.34	YES	All but Cu	YES	4.00	Impacted
LW03-SD543-00-10C	9/1/2010	543	Offshore	1.5	151	0.65	62.3	0.58	28.0	1.06	9.35	0.83	344	0.84	0.79	NO	7111 But Gu	YES	1.50	Possibly impacted
LW03-SD545-00-10C	9/1/2010	545	Offshore	2.0	230	0.99	158	1.48	33.3	1.26	17.0	1.52	433	1.06	1.26	YES	Sn, Avg	YES	2.00	Impacted
LW03-SD546-00-10C	9/1/2010	546	Offshore	3.0	197	0.85	60.4	0.56	27.1	1.02	9.35	0.83	318	0.78	0.81	NO		YES	3.00	Possibly impacted
LW03-SD548-00-10C	9/9/2010	548	Offshore	0	161	0.69	55.1	0.51	26.9	1.02	8.31	0.74	340	0.83	0.76	NO		NO		Unimpacted
LW03-SD549-00-10C	9/9/2010	549	Offshore	0.01	218	0.94	126	1.18	36.8	1.39	22.0	1.96	595	1.45	1.38	YES	Sn, Avg	NO		Possibly impacted
LW03-SD550-00-10C	9/8/2010	550	Offshore	No data	53.1	0.23	16.4	0.15	8.72	0.33	2.89	0.26	102	0.25	0.24	NO			No data	Unimpacted

TABLE D-11
Surface Sediment Screening for SWMU 3 COCs - 2010 Samples
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

				Percent	Copper		Lead		Nickel		Tin		Zinc						Percent	
Sample	Date	Grid	Area	ABM	(MG/KG)	RQ	(MG/KG)	RQ	(MG/KG)	RQ	(MG/KG)	RQ	(MG/KG)	RQ	Average RQ	Fails RQ?	Reason for Failure	ABM > 1%?	ABM	Classification
LW03-SD551-00-10C	9/8/2010	551	Offshore	0.3	110	0.47	167	1.56	23.3	0.88	7.97	0.71	258	0.63	0.85	YES	Pb	NO		Possibly impacted
LW03-SD552-00-10C	9/7/2010	552	Offshore	0.03	138	0.59	49.5	0.46	22.2	0.84	8.16	0.73	275	0.67	0.66	NO		NO		Unimpacted
LW03-SD555-00-10C	9/9/2010	555	Offshore	0.001	169	0.73	724	6.77	25.8	0.97	8.87	0.79	540	1.32	2.12	YES	Pb, Avg	NO		Possibly impacted
LW03-SD556-00-10C	9/8/2010	556	Offshore	0.02	167	0.72	93.4	0.87	24.6	0.93	11.3	1.01	377	0.92	0.89	NO		NO		Unimpacted
LW03-SD557-00-10C	9/8/2010	557	Offshore	0.03	145	0.63	50.2	0.47	27.8	1.05	8.89	0.79	302	0.74	0.73	NO		NO		Unimpacted
LW03-SD558-00-10C	9/8/2010	558	Offshore	0.4	201	0.87	76.6	0.72	34.3	1.29	16.6	1.48	449	1.10	1.09	YES	Avg	NO		Possibly impacted
LW03-SD562-00-10C	9/8/2010	562	Offshore	0.01	133	0.57	49.6	0.46	25.9	0.98	8.29	0.74	271	0.66	0.68	NO		NO		Unimpacted
LW03-SD563-00-10C	9/8/2010	563	Offshore	0.02	131	0.56	49.4	0.46	25.1	0.95	8.08	0.72	270	0.66	0.67	NO		NO		Unimpacted
LW03-SD564-00-10C	9/8/2010	564	Offshore	0.05	144	0.62	44.2	0.41	25.4	0.96	8.02	0.72	270	0.66	0.67	NO		NO		Unimpacted
LW03-SD567-00-10C	9/8/2010	567	Offshore	0.02	161	0.69	47.9	0.45	30.2	1.14	7.96	0.71	300	0.73	0.74	NO		NO		Unimpacted
LW03-SD571-00-10C	9/8/2010	571	Offshore	0.05	131	0.56	62.4	0.58	25.1	0.95	8.39	0.75	307	0.75	0.72	NO		NO		Unimpacted
LW03-SD574-00-10C	8/31/2010	574	Offshore	0.25	163	0.70	47.7	0.45	21.7	0.82	7.18	0.64	254	0.62	0.65	NO		NO		Unimpacted

Notes:

Shaded cells = detects Unshaded cells = U or B (at full DL)

$RQ \leq 1 \text{ or } 1.5$
RQ > 1.5 (Ind)
RQ > 1 (Avg)

	PRG	Basis
Copper	232	ABM
Lead	107	ABM
Nickel	26.5	Back
Tin	11.2	ABM
Zinc	410	ER-M

TABLE D-12
Statistical Summary of SWMU 3 Benthic Invertebrate Replicate Samples
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

Metric	Sample	Mean	Standard Deviation	Coefficient of Variation (percent)	Number of Replicates	Minimum Value	Median Value	Maximum Value
Total Count	534					0	0	41
Total Count	550					0	1	2
Total Count	558					0	0	3
Number of Taxa (Taxa Richness)	534	5.00	8.66	173	3	0	0	15
Number of Taxa (Taxa Richness)	550	0.67	0.58	86.6	3	0	1	1
Number of Taxa (Taxa Richness)	558	1.00	1.73	173	3	0	0	3
Total Density	534	196	340	173	3	0	0	589
Total Density	550	14.4	14.4	100	3	0	14	29
Total Density	558	14.4	24.9	173	3	0	0	43

TABLE D-13

Correlations of Sediment/Water Column Properties and Benthic Invertebrates Metrics (2010 Samples)

SWMU 3 Benthic Invertebrate Evaluation

Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

		•	Pe	arson (paran	netric)		Spear	man (non-pa	aramet	ric)	
Parameter	Medium	Benthic Invertebrate Metric	Correlation Coefficient	Probabil	ity	R <sup>2</sup>	Correlation Coefficient	Probabil	ity	R <sup>2</sup>	Direction
Copper	Sediment	Number of Taxa (Taxa Richness)	0.467	1.66E-04	S	0.218	0.109	4.06E-01	NS	0.012	
Lead	Sediment	Number of Taxa (Taxa Richness)	0.437	4.76E-04	S	0.191	0.293	2.33E-02	S	0.086	Positive
Nickel	Sediment	Number of Taxa (Taxa Richness)	0.441	4.19E-04	S	0.195	-0.185	1.57E-01	NS	0.034	
Tin	Sediment	Number of Taxa (Taxa Richness)	0.470	1.49E-04	S	0.221	0.231	7.62E-02	NS	0.053	
Zinc	Sediment	Number of Taxa (Taxa Richness)	0.434	5.24E-04	S	0.189	0.064	6.25E-01	NS	0.004	
Average RQ	Sediment	Number of Taxa (Taxa Richness)	0.459	2.22E-04	S	0.211	0.137	2.95E-01	NS	0.019	(Positive)
Percent ABM	Sediment	Number of Taxa (Taxa Richness)	0.486	1.10E-04	S	0.236	0.424	8.97E-04	S	0.180	Positive
SEM/AVS Ratio	Sediment	Number of Taxa (Taxa Richness)	0.202	1.21E-01	NS	0.041	0.375	3.13E-03	S	0.141	
Large Gravel	Sediment	Number of Taxa (Taxa Richness)	0.468	1.63E-04	S	0.219	0.322	1.22E-02	S	0.104	Positive
Coarse Gravel	Sediment	Number of Taxa (Taxa Richness)	0.301	1.94E-02	S	0.091	0.311	1.57E-02	S	0.097	Positive
Fine Gravel	Sediment	Number of Taxa (Taxa Richness)	0.590	6.97E-07	S	0.348	0.618	1.47E-07	S	0.381	Positive
Coarse Sand	Sediment	Number of Taxa (Taxa Richness)	0.537	9.67E-06	S	0.288	0.685	1.52E-09	S	0.470	Positive
Medium Sand	Sediment	Number of Taxa (Taxa Richness)	0.656	1.30E-08	S	0.430	0.678	2.57E-09	S	0.460	Positive
Fine Sand	Sediment	Number of Taxa (Taxa Richness)	0.463	1.96E-04	S	0.214	0.624	1.00E-07	S	0.389	Positive
Silt/Clay	Sediment	Number of Taxa (Taxa Richness)	-0.727	4.60E-11	S	0.529	-0.787	8.83E-14	S	0.620	Negative
Sediment pH	Sediment	Number of Taxa (Taxa Richness)	0.027	8.39E-01	NS	0.001	-0.048	7.17E-01	NS	0.002	
TOC	Sediment	Number of Taxa (Taxa Richness)	-0.518	2.28E-05	S	0.268	-0.522	1.89E-05	S	0.272	Negative
Bottom Dissolved Oxygen	Water Column	Number of Taxa (Taxa Richness)	0.436	4.99E-04	S	0.190	0.585	9.21E-07	S	0.342	Positive
Bottom ORP	Water Column	Number of Taxa (Taxa Richness)	0.367	3.91E-03	S	0.135	0.474	1.28E-04	S	0.225	Positive
Bottom Salinity	Water Column	Number of Taxa (Taxa Richness)	-0.308	1.66E-02	S	0.095	-0.336	8.62E-03	S	0.113	Negative
Bottom Specific Conductivity	Water Column	Number of Taxa (Taxa Richness)	-0.303	1.88E-02	S	0.092	-0.330	9.91E-03	S	0.109	Negative
Bottom Temperature	Water Column	Number of Taxa (Taxa Richness)	0.081	5.40E-01	NS	0.007	0.077	5.65E-01	NS	0.006	
Bottom Turbidity	Water Column	Number of Taxa (Taxa Richness)	-0.165	2.15E-01	NS	0.027	-0.330	1.15E-02	S	0.109	
Bottom Water pH	Water Column	Number of Taxa (Taxa Richness)	0.232	7.51E-02	NS	0.054	0.326	1.09E-02	S	0.106	
Water Depth	Water Column	Number of Taxa (Taxa Richness)	-0.673	7.36E-09	S	0.452	-0.750	1.25E-11	S	0.562	Negative
Copper	Sediment	Total Density (Number per Square Meter)	0.497	5.35E-05	S	0.247	0.133	3.09E-01	NS	0.018	
Lead	Sediment	Total Density (Number per Square Meter)	0.448	3.27E-04	S	0.201	0.338	8.18E-03	S	0.115	Positive
Nickel	Sediment	Total Density (Number per Square Meter)	0.455	2.57E-04	S	0.207	-0.182	1.64E-01	NS	0.033	
Tin	Sediment	Total Density (Number per Square Meter)	0.480	1.05E-04	S	0.230	0.255	4.91E-02	S	0.065	Positive
Zinc	Sediment	Total Density (Number per Square Meter)	0.427	6.67E-04	S	0.182	0.087	5.11E-01	NS	0.007	
Average RQ	Sediment	Total Density (Number per Square Meter)	0.469	1.57E-04	S	0.220	0.174	1.84E-01	NS	0.030	(Positive)
Percent ABM	Sediment	Total Density (Number per Square Meter)	0.419	1.07E-03	S	0.175	0.407	1.53E-03	S	0.165	Positive
SEM/AVS Ratio	Sediment	Total Density (Number per Square Meter)	0.074	5.72E-01	NS	0.006	0.327	1.08E-02	S	0.107	
Large Gravel	Sediment	Total Density (Number per Square Meter)	0.338	8.33E-03	S	0.114	0.281	2.94E-02	S	0.079	Positive
Coarse Gravel	Sediment	Total Density (Number per Square Meter)	0.329	1.03E-02	S	0.108	0.284	2.76E-02	S	0.081	Positive

TABLE D-13

Correlations of Sediment/Water Column Properties and Benthic Invertebrates Metrics (2010 Samples)

SWMU 3 Benthic Invertebrate Evaluation

Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

			Pe	arson (paran	netric)		Spear	man (non-pa	ramet	ric)	
Parameter	Medium	Benthic Invertebrate Metric	Correlation Coefficient	Probabil	ity	R <sup>2</sup>	Correlation Coefficient	Probabil	ity	$R^2$	Direction
Fine Gravel	Sediment	Total Density (Number per Square Meter)	0.546	6.38E-06	S	0.298	0.617	1.50E-07	S	0.381	Positive
Coarse Sand	Sediment	Total Density (Number per Square Meter)	0.588	7.73E-07	S	0.346	0.678	2.69E-09	S	0.460	Positive
Medium Sand	Sediment	Total Density (Number per Square Meter)	0.592	6.38E-07	S	0.350	0.664	7.33E-09	S	0.441	Positive
Fine Sand	Sediment	Total Density (Number per Square Meter)	0.330	1.01E-02	S	0.109	0.605	3.03E-07	S	0.366	Positive
Silt/Clay	Sediment	Total Density (Number per Square Meter)	-0.601	3.80E-07	S	0.361	-0.765	1.17E-12	S	0.584	Negative
Sediment pH	Sediment	Total Density (Number per Square Meter)	0.037	7.80E-01	NS	0.001	-0.098	4.58E-01	NS	0.010	
TOC	Sediment	Total Density (Number per Square Meter)	-0.476	1.20E-04	S	0.227	-0.539	8.88E-06	S	0.290	Negative
Bottom Dissolved Oxygen	Water Column	Total Density (Number per Square Meter)	0.352	5.87E-03	S	0.124	0.574	1.62E-06	S	0.330	Positive
Bottom ORP	Water Column	Total Density (Number per Square Meter)	0.360	4.70E-03	S	0.130	0.493	6.28E-05	S	0.243	Positive
Bottom Salinity	Water Column	Total Density (Number per Square Meter)	-0.359	4.82E-03	S	0.129	-0.352	5.85E-03	S	0.124	Negative
Bottom Specific Conductivity	Water Column	Total Density (Number per Square Meter)	-0.355	5.33E-03	S	0.126	-0.348	6.43E-03	S	0.121	Negative
Bottom Temperature	Water Column	Total Density (Number per Square Meter)	0.011	9.34E-01	NS	0.0001	-0.009	9.44E-01	NS	0.0001	
Bottom Turbidity	Water Column	Total Density (Number per Square Meter)	-0.134	3.17E-01	NS	0.018	-0.302	2.11E-02	S	0.091	
Bottom Water pH	Water Column	Total Density (Number per Square Meter)	0.184	1.58E-01	NS	0.034	0.302	1.90E-02	S	0.091	
Water Depth	Water Column	Total Density (Number per Square Meter)	-0.532	1.70E-05	S	0.283	-0.711	3.93E-10	S	0.506	Negative

S - Significant (p  $\leq$  0.05); NS - Not Significant (p > 0.05)

 $<sup>\</sup>ensuremath{\mathsf{R}}^2$  - represents the percentage of variability explained

TABLE D-14
Significant Correlations of Sediment/Water Column Properties and Benthic Invertebrates Metrics (2010 Samples)
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

Joint Expeditionary Base Entire			Pe	arson (paran	netric)		Spear	man (non-pa	aramet	ric)	
Parameter	Medium	Benthic Invertebrate Metric	Correlation Coefficient	Probabil	ity	R <sup>2</sup>	Correlation Coefficient	Probabil	ity	R <sup>2</sup>	Direction
Sorted by Benthic Invertebra	te Metric										
Copper	Sediment	Number of Taxa (Taxa Richness)	0.467	1.66E-04	S	0.218	0.109	4.06E-01	NS	0.012	
Lead	Sediment	Number of Taxa (Taxa Richness)	0.437	4.76E-04	S	0.191	0.293	2.33E-02	S	0.086	Positive
Nickel	Sediment	Number of Taxa (Taxa Richness)	0.441	4.19E-04	S	0.195	-0.185	1.57E-01	NS	0.034	
Tin	Sediment	Number of Taxa (Taxa Richness)	0.470	1.49E-04	S	0.221	0.231	7.62E-02	NS	0.053	
Zinc	Sediment	Number of Taxa (Taxa Richness)	0.434	5.24E-04	S	0.189	0.064	6.25E-01	NS	0.004	
Average RQ	Sediment	Number of Taxa (Taxa Richness)	0.459	2.22E-04	S	0.211	0.137	2.95E-01	NS	0.019	(Positive)
Percent ABM	Sediment	Number of Taxa (Taxa Richness)	0.486	1.10E-04	S	0.236	0.424	8.97E-04	S	0.180	Positive
SEM/AVS Ratio	Sediment	Number of Taxa (Taxa Richness)	0.202	1.21E-01	NS	0.041	0.375	3.13E-03	S	0.141	
Large Gravel	Sediment	Number of Taxa (Taxa Richness)	0.468	1.63E-04	S	0.219	0.322	1.22E-02	S	0.104	Positive
Coarse Gravel	Sediment	Number of Taxa (Taxa Richness)	0.301	1.94E-02	S	0.091	0.311	1.57E-02	S	0.097	Positive
Fine Gravel	Sediment	Number of Taxa (Taxa Richness)	0.590	6.97E-07	S	0.348	0.618	1.47E-07	S	0.381	Positive
Coarse Sand	Sediment	Number of Taxa (Taxa Richness)	0.537	9.67E-06	S	0.288	0.685	1.52E-09	S	0.470	Positive
Medium Sand	Sediment	Number of Taxa (Taxa Richness)	0.656	1.30E-08	S	0.430	0.678	2.57E-09	S	0.460	Positive
Fine Sand	Sediment	Number of Taxa (Taxa Richness)	0.463	1.96E-04	S	0.214	0.624	1.00E-07	S	0.389	Positive
Silt/Clay	Sediment	Number of Taxa (Taxa Richness)	-0.727	4.60E-11	S	0.529	-0.787	8.83E-14	S	0.620	Negative
TOC	Sediment	Number of Taxa (Taxa Richness)	-0.518	2.28E-05	S	0.268	-0.522	1.89E-05	S	0.272	Negative
Bottom Dissolved Oxygen	Water Column	Number of Taxa (Taxa Richness)	0.436	4.99E-04	S	0.190	0.585	9.21E-07	S	0.342	Positive
Bottom ORP	Water Column	Number of Taxa (Taxa Richness)	0.367	3.91E-03	S	0.135	0.474	1.28E-04	S	0.225	Positive
Bottom Salinity	Water Column	Number of Taxa (Taxa Richness)	-0.308	1.66E-02	S	0.095	-0.336	8.62E-03	S	0.113	Negative
Bottom Specific Conductivity	Water Column	Number of Taxa (Taxa Richness)	-0.303	1.88E-02	S	0.092	-0.330	9.91E-03	S	0.109	Negative
Bottom Turbidity	Water Column	Number of Taxa (Taxa Richness)	-0.165	2.15E-01	NS	0.027	-0.330	1.15E-02	S	0.109	
Bottom Water pH	Water Column	Number of Taxa (Taxa Richness)	0.232	7.51E-02	NS	0.054	0.326	1.09E-02	S	0.106	
Water Depth	Water Column	Number of Taxa (Taxa Richness)	-0.673	7.36E-09	S	0.452	-0.750	1.25E-11	S	0.562	Negative
Copper	Sediment	Total Density (Number per Square Meter)	0.497	5.35E-05	S	0.247	0.133	3.09E-01	NS	0.018	
Lead	Sediment	Total Density (Number per Square Meter)	0.448	3.27E-04	S	0.201	0.338	8.18E-03	S	0.115	Positive
Nickel	Sediment	Total Density (Number per Square Meter)	0.455	2.57E-04	S	0.207	-0.182	1.64E-01	NS	0.033	
Tin	Sediment	Total Density (Number per Square Meter)	0.480	1.05E-04	S	0.230	0.255	4.91E-02	S	0.065	Positive
Zinc	Sediment	Total Density (Number per Square Meter)	0.427	6.67E-04	S	0.182	0.087	5.11E-01	NS	0.007	
Average RQ	Sediment	Total Density (Number per Square Meter)	0.469	1.57E-04	S	0.220	0.174	1.84E-01	NS	0.030	(Positive)
Percent ABM	Sediment	Total Density (Number per Square Meter)	0.419	1.07E-03	S	0.175	0.407	1.53E-03	S	0.165	Positive
SEM/AVS Ratio	Sediment	Total Density (Number per Square Meter)	0.074	5.72E-01	NS	0.006	0.327	1.08E-02	S	0.107	
Large Gravel	Sediment	Total Density (Number per Square Meter)	0.338	8.33E-03	S	0.114	0.281	2.94E-02	S	0.079	Positive
Coarse Gravel	Sediment	Total Density (Number per Square Meter)	0.329	1.03E-02	S	0.108	0.284	2.76E-02	S	0.081	Positive
Fine Gravel	Sediment	Total Density (Number per Square Meter)	0.546	6.38E-06	S	0.298	0.617	1.50E-07	S	0.381	Positive

TABLE D-14
Significant Correlations of Sediment/Water Column Properties and Benthic Invertebrates Metrics (2010 Samples)
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

			Pe	arson (paran	netric)		Spear	man (non-pa	aramet	ric)	
Parameter	Medium	Benthic Invertebrate Metric	Correlation Coefficient	Probabil	ity	R <sup>2</sup>	Correlation Coefficient	Probabil	ity	R <sup>2</sup>	Direction
Coarse Sand	Sediment	Total Density (Number per Square Meter)	0.588	7.73E-07	S	0.346	0.678	2.69E-09	S	0.460	Positive
Medium Sand	Sediment	Total Density (Number per Square Meter)	0.592	6.38E-07	S	0.350	0.664	7.33E-09	S	0.441	Positive
Fine Sand	Sediment	Total Density (Number per Square Meter)	0.330	1.01E-02	S	0.109	0.605	3.03E-07	S	0.366	Positive
Silt/Clay	Sediment	Total Density (Number per Square Meter)	-0.601	3.80E-07	S	0.361	-0.765	1.17E-12	S	0.584	Negative
TOC	Sediment	Total Density (Number per Square Meter)	-0.476	1.20E-04	S	0.227	-0.539	8.88E-06	S	0.290	Negative
Bottom Dissolved Oxygen	Water Column	Total Density (Number per Square Meter)	0.352	5.87E-03	S	0.124	0.574	1.62E-06	S	0.330	Positive
Bottom ORP	Water Column	Total Density (Number per Square Meter)	0.360	4.70E-03	S	0.130	0.493	6.28E-05	S	0.243	Positive
Bottom Salinity	Water Column	Total Density (Number per Square Meter)	-0.359	4.82E-03	S	0.129	-0.352	5.85E-03	S	0.124	Negative
Bottom Specific Conductivity	Water Column	Total Density (Number per Square Meter)	-0.355	5.33E-03	S	0.126	-0.348	6.43E-03	S	0.121	Negative
Bottom Turbidity	Water Column	Total Density (Number per Square Meter)	-0.134	3.17E-01	NS	0.018	-0.302	2.11E-02	S	0.091	
Bottom Water pH	Water Column	Total Density (Number per Square Meter)	0.184	1.58E-01	NS	0.034	0.302	1.90E-02	S	0.091	
Water Depth	Water Column	Total Density (Number per Square Meter)			0.283	-0.711	3.93E-10	S	0.506	Negative	
Sorted by Water/Sediment Pa	arameter										
Average RQ	Sediment	Number of Taxa (Taxa Richness)	0.459	2.22E-04	S	0.211	0.137	2.95E-01	NS	0.019	(Positive)
Average RQ	Sediment	Total Density (Number per Square Meter)	0.469	1.57E-04	S	0.220	0.174	1.84E-01	NS	0.030	(Positive)
Bottom Dissolved Oxygen	Water Column	Number of Taxa (Taxa Richness)	0.436	4.99E-04	S	0.190	0.585	9.21E-07	S	0.342	Positive
Bottom Dissolved Oxygen	Water Column	Total Density (Number per Square Meter)	0.352	5.87E-03	S	0.124	0.574	1.62E-06	S	0.330	Positive
Bottom ORP	Water Column	Number of Taxa (Taxa Richness)	0.367	3.91E-03	S	0.135	0.474	1.28E-04	S	0.225	Positive
Bottom ORP	Water Column	Total Density (Number per Square Meter)	0.360	4.70E-03	S	0.130	0.493	6.28E-05	S	0.243	Positive
Bottom Salinity	Water Column	Number of Taxa (Taxa Richness)	-0.308	1.66E-02	S	0.095	-0.336	8.62E-03	S	0.113	Negative
Bottom Salinity	Water Column	Total Density (Number per Square Meter)	-0.359	4.82E-03	S	0.129	-0.352	5.85E-03	S	0.124	Negative
Bottom Specific Conductivity	Water Column	Number of Taxa (Taxa Richness)	-0.303	1.88E-02	S	0.092	-0.330	9.91E-03	S	0.109	Negative
Bottom Specific Conductivity	Water Column	Total Density (Number per Square Meter)	-0.355	5.33E-03	S	0.126	-0.348	6.43E-03	S	0.121	Negative
Bottom Turbidity	Water Column	Number of Taxa (Taxa Richness)	-0.165	2.15E-01	NS	0.027	-0.330	1.15E-02	S	0.109	
Bottom Turbidity	Water Column	Total Density (Number per Square Meter)	-0.134	3.17E-01	NS	0.018	-0.302	2.11E-02	S	0.091	
Bottom Water pH	Water Column	Number of Taxa (Taxa Richness)	0.232	7.51E-02	NS	0.054	0.326	1.09E-02	S	0.106	
Bottom Water pH	Water Column	Total Density (Number per Square Meter)	0.184	1.58E-01	NS	0.034	0.302	1.90E-02	S	0.091	
Coarse Gravel	Sediment	Number of Taxa (Taxa Richness)	0.301	1.94E-02	S	0.091	0.311	1.57E-02	S	0.097	Positive
Coarse Gravel	Sediment	Total Density (Number per Square Meter)	0.329	1.03E-02	S	0.108	0.284	2.76E-02	S	0.081	Positive
Coarse Sand	Sediment	Number of Taxa (Taxa Richness)	0.537	9.67E-06	S	0.288	0.685	1.52E-09	S	0.470	Positive
Coarse Sand	Sediment	Total Density (Number per Square Meter)	0.588	7.73E-07	S	0.346	0.678	2.69E-09	S	0.460	Positive
Copper	Sediment	Number of Taxa (Taxa Richness)	0.467	1.66E-04	S	0.218	0.109	4.06E-01	NS	0.012	
Copper	Sediment	Total Density (Number per Square Meter)	0.497	5.35E-05	S	0.247	0.133	3.09E-01	NS	0.018	
Fine Gravel	Sediment	Number of Taxa (Taxa Richness)	0.590	6.97E-07	S	0.348	0.618	1.47E-07	S	0.381	Positive
Fine Gravel	Sediment	Total Density (Number per Square Meter)	0.546	6.38E-06	S	0.298	0.617	1.50E-07	S	0.381	Positive

TABLE D-14
Significant Correlations of Sediment/Water Column Properties and Benthic Invertebrates Metrics (2010 Samples)
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

			Pe	arson (paran	netric)		Spear	man (non-pa	ramet	ric)	
Parameter	Medium	Benthic Invertebrate Metric	Correlation Coefficient	Probabil	ity	R <sup>2</sup>	Correlation Coefficient	Probabil	ity	R <sup>2</sup>	Direction
Fine Sand	Sediment	Number of Taxa (Taxa Richness)	0.463	1.96E-04	S	0.214	0.624	1.00E-07	S	0.389	Positive
Fine Sand	Sediment	Total Density (Number per Square Meter)	0.330	1.01E-02	S	0.109	0.605	3.03E-07	S	0.366	Positive
Large Gravel	Sediment	Number of Taxa (Taxa Richness)	0.468	1.63E-04	S	0.219	0.322	1.22E-02	S	0.104	Positive
Large Gravel	Sediment	Total Density (Number per Square Meter)	0.338	8.33E-03	S	0.114	0.281	2.94E-02	S	0.079	Positive
Lead	Sediment	Number of Taxa (Taxa Richness)	0.437	4.76E-04	S	0.191	0.293	2.33E-02	S	0.086	Positive
Lead	Sediment	Total Density (Number per Square Meter)	0.448	3.27E-04	S	0.201	0.338	8.18E-03	S	0.115	Positive
Medium Sand	Sediment	Number of Taxa (Taxa Richness)	0.656	1.30E-08	S	0.430	0.678	2.57E-09	S	0.460	Positive
Medium Sand	Sediment	Total Density (Number per Square Meter)	0.592	6.38E-07	S	0.350	0.664	7.33E-09	S	0.441	Positive
Nickel	Sediment	Number of Taxa (Taxa Richness)	0.441	4.19E-04	S	0.195	-0.185	1.57E-01	NS	0.034	
Nickel	Sediment	Total Density (Number per Square Meter)	0.455	2.57E-04	S	0.207	-0.182	1.64E-01	NS	0.033	
Percent ABM	Sediment	Number of Taxa (Taxa Richness)	0.486	1.10E-04	S	0.236	0.424	8.97E-04	S	0.180	Positive
Percent ABM	Sediment	Total Density (Number per Square Meter)	0.419	1.07E-03	S	0.175	0.407	1.53E-03	S	0.165	Positive
SEM/AVS Ratio	Sediment	Number of Taxa (Taxa Richness)	0.202	1.21E-01	NS	0.041	0.375	3.13E-03	S	0.141	
SEM/AVS Ratio	Sediment	Total Density (Number per Square Meter)	0.074	5.72E-01	NS	0.006	0.327	1.08E-02	S	0.107	
Silt/Clay	Sediment	Number of Taxa (Taxa Richness)	-0.727	4.60E-11	S	0.529	-0.787	8.83E-14	S	0.620	Negative
Silt/Clay	Sediment	Total Density (Number per Square Meter)	-0.601	3.80E-07	S	0.361	-0.765	1.17E-12	S	0.584	Negative
Tin	Sediment	Number of Taxa (Taxa Richness)	0.470	1.49E-04	S	0.221	0.231	7.62E-02	NS	0.053	
Tin	Sediment	Total Density (Number per Square Meter)	0.480	1.05E-04	S	0.230	0.255	4.91E-02	S	0.065	Positive
TOC	Sediment	Number of Taxa (Taxa Richness)	-0.518	2.28E-05	S	0.268	-0.522	1.89E-05	S	0.272	Negative
TOC	Sediment	Total Density (Number per Square Meter)	-0.476	1.20E-04	S	0.227	-0.539	8.88E-06	S	0.290	Negative
Water Depth	Water Column	Number of Taxa (Taxa Richness)	-0.673	7.36E-09	S	0.452	-0.750	1.25E-11	S	0.562	Negative
Water Depth	Water Column	Total Density (Number per Square Meter)	-0.532	1.70E-05	S	0.283	-0.711	3.93E-10	S	0.506	Negative
Zinc	Sediment	Number of Taxa (Taxa Richness)	0.434	5.24E-04	S	0.189	0.064	6.25E-01	NS	0.004	
Zinc	Sediment	Total Density (Number per Square Meter)	0.427	6.67E-04	S	0.182	0.087	5.11E-01	NS	0.007	

S - Significant (p  $\leq$  0.05); NS - Not Significant (p > 0.05)

R<sup>2</sup> - represents the percentage of variability explained

TABLE D-15

Correlations of Among Key Sediment Parameters, Water Column Parameters, and Benthic Invertebrates Metrics (2010 Samples)

SWMU 3 Benthic Invertebrate Evaluation

Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

		Pea	rson (param	netric)		Spearr	nan (non-para	ametı	ric)	
Parameter	Parameter	Correlation Coefficient	Probabil	ity	R²	Correlation Coefficient	Probabilit	y	R²	Direction
Average RQ	Percent ABM	0.693	1.63E-09	S	0.481	0.532	1.70E-05	S	0.283	Positive
Average RQ	Silt/Clay	-0.338	8.31E-03	S	0.114	-0.102	4.40E-01	NS	0.010	
Average RQ	Total Organic Carbon	-0.283	2.83E-02	S	0.080	0.052	6.96E-01	NS	0.003	
Average RQ	Bottom Dissolved Oxygen	0.109	4.06E-01	NS	0.012	0.143	2.75E-01	NS	0.021	
Average RQ	Water Depth	-0.305	1.99E-02	S	0.093	-0.089	5.04E-01	NS	0.008	
Percent ABM	Average RQ	0.693	1.63E-09	S	0.481	0.532	1.70E-05	S	0.283	Positive
Percent ABM	Silt/Clay	-0.501	6.30E-05	S	0.251	-0.485	1.12E-04	S	0.236	Negative
Percent ABM	Total Organic Carbon	-0.208	1.18E-01	NS	0.043	-0.231	8.15E-02	NS	0.053	
Percent ABM	Bottom Dissolved Oxygen	0.240	6.99E-02	NS	0.057	0.224	9.11E-02	NS	0.050	
Percent ABM	Water Depth	-0.443	6.24E-04	S	0.196	-0.399	2.29E-03	S	0.160	Negative
Silt/Clay	Average RQ	-0.338	8.31E-03	S	0.114	-0.102	4.40E-01	NS	0.010	
Silt/Clay	Percent ABM	-0.501	6.30E-05	S	0.251	-0.485	1.12E-04	S	0.236	Negative
Silt/Clay	Total Organic Carbon	0.689	1.12E-09	S	0.475	0.642	3.31E-08	S	0.412	Positive
Silt/Clay	Bottom Dissolved Oxygen	-0.386	2.32E-03	S	0.149	-0.487	8.02E-05	S	0.237	Negative
Silt/Clay	Water Depth	0.699	1.05E-09	S	0.489	0.727	9.93E-11	S	0.529	Positive
Total Organic Carbon	Average RQ	-0.283	2.83E-02	S	0.080	0.052	6.96E-01	NS	0.003	
Total Organic Carbon	Percent ABM	-0.208	1.18E-01	NS	0.043	-0.231	8.15E-02	NS	0.053	
Total Organic Carbon	Silt/Clay	0.689	1.12E-09	S	0.475	0.642	3.31E-08	S	0.412	Positive
Total Organic Carbon	Bottom Dissolved Oxygen	-0.287	2.64E-02	S	0.082	-0.267	3.94E-02	S	0.071	Negative
Total Organic Carbon	Water Depth	0.613	3.17E-07	S	0.376	0.577	2.15E-06	S	0.333	Positive
Bottom Dissolved Oxygen	Average RQ	0.109	4.06E-01	NS	0.012	0.143	2.75E-01	NS	0.021	
Bottom Dissolved Oxygen	Percent ABM	0.240	6.99E-02	NS	0.057	0.224	9.11E-02	NS	0.050	
Bottom Dissolved Oxygen	Silt/Clay	-0.386	2.32E-03	S	0.149	-0.487	8.02E-05	S	0.237	Negative
Bottom Dissolved Oxygen	Total Organic Carbon	-0.287	2.64E-02	S	0.082	-0.267	3.94E-02	S	0.071	Negative
Bottom Dissolved Oxygen	Water Depth	-0.692	1.84E-09	S	0.478	-0.608	4.11E-07	S	0.370	Negative
Water Depth	Average RQ	-0.305	1.99E-02	S	0.093	-0.089	5.04E-01	NS	0.008	
Water Depth	Percent ABM	-0.443	6.24E-04	S	0.196	-0.399	2.29E-03	S	0.160	Negative
Water Depth	Silt/Clay	0.699	1.05E-09	S	0.489	0.727	9.93E-11	S	0.529	Positive
Water Depth	Total Organic Carbon	0.613	3.17E-07	S	0.376	0.577	2.15E-06	S	0.333	Positive
Water Depth	Bottom Dissolved Oxygen	-0.692	1.84E-09	S	0.478	-0.608	4.11E-07	S	0.370	Negative
Total Density	Number of Taxa	0.915	1.58E-24	S	0.837	0.978	4.18E-41	S	0.956	Positive

S - Significant (p  $\leq$  0.05); NS - Not Significant (p > 0.05)

R<sup>2</sup> - represents the percentage of variability explained

TABLE D-16
Multivariate Regression Evaluation of 2010 Benthic Invertebrate Metrics
SWMU 3 Benthic Invertebrate Evaluation
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

	Dependent Variable	Method	R <sup>2</sup>	Adjusted R <sup>2</sup>	Intercept	Average RQ	Percent ABM	Silt/Clay	Total Organic Carbon	Bottom Dissolved Oxygen	Water Depth
Coefficients	Number of Taxa (Taxa Richness)	Stepwise	0.631	0.610	21.1	0.53		-0.14			-0.42
Probabilities		Stepwise		6.52E-03	1.07E-12	1.97E-02		4.18E-04			1.62E-02
Order Added		Stepwise				3		1			2
Coefficients	Number of Taxa (Taxa Richness)	Backward	0.631	0.610	21.1	0.53		-0.14			-0.42
Probabilities		Backward		6.52E-03	1.07E-12	1.97E-02		4.18E-04			1.62E-02
Order Removed		Backward					1		2	3	
Coefficients	Number of Taxa (Taxa Richness)	Forward	0.637	0.608	16.7	0.56		-0.14		0.65	-0.30
Probabilities		Forward		1.12E-02	3.49E-03	1.61E-02		3.36E-04		3.82E-01	1.77E-01
Order Added		Forward				3		1		4	2
Coefficients	Number of Taxa (Taxa Richness)	None	0.643	0.600	17.6	0.72	-0.10	-0.16	0.00008	0.59	-0.37
Probabilities		None		1.22E-02	2.88E-03	2.33E-02	4.46E-01	5.97E-04	4.22E-01	4.37E-01	1.23E-01
Coefficients	Total Density	Stepwise	0.443	0.422	807	44.9		-9.28			
Probabilities		Stepwise		1.70E-06	2.22E-07	8.69E-03		2.48E-05			
Order Added		Stepwise				2		1			
Coefficients	Total Density	Backward	0.443	0.422	807	44.9		-9.28			
Probabilities		Backward		1.70E-06	2.22E-07	8.69E-03		2.48E-05			
Order Removed		Backward					3		1	4	2
Coefficients	Total Density	Forward	0.472	0.430	516	56.7	-6.86	-8.62		65.0	
Probabilities		Forward		1.01E-06	5.54E-02	1.11E-02	4.32E-01	4.33E-04		1.31E-01	
Order Added		Forward				2	4	1		3	
Coefficients	Total Density	None	0.475	0.410	683	55.3	-6.87	-7.63	-0.0006	47.0	-8.43
Probabilities		None		2.12E-06	1.08E-01	1.98E-02	4.80E-01	2.54E-02	9.40E-01	4.03E-01	6.29E-01

Probability values in bold are significant ( $p \le 0.05$ )

TABLE D-17

Spatial Comparison of the Nearshore, Marine, Offshore, and Dry Dock Areas - 2010 data SWMU 3 Benthic Invertebrate Evaluation

Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

		Kru	ıskal-Walli:	s (ranks)						Analysis	of Variand	e (value	s)			
Metric/Parameter	Probability	Decision	Near Shore	Marina	Offshore	Dry Dock	Probability	Decision	Near Shore	Mean	Marina	Mean	Offshore	Mean	Dry Dock	Mean
Number of Taxa	1.39E-09	Different	Α	AB	BC	С	9.69E-08	Different	Α	15.7	AB	8.82	В	2.28	В	0.0
Total Density	2.30E-08	Different	Α	AB	BC	С	1.53E-04	Different	Α	737	AB	457	В	81.4	В	0.0
Average RQ	8.46E-01		Α	Α	Α	Α	1.80E-01		Α	3.19	Α	1.10	Α	0.98	Α	0.76
Percent ABM	1.56E-03	Different	Α	Α	Α	Α	4.03E-04	Different	Α	12.3	AB	2.44	AB	0.87	В	0.67
Silt/Clay	1.24E-10	Different	Α	В	BC	С	1.79E-11	Different	Α	24.2	В	54.7	BC	74.9	С	85.3
Total Organic Carbon	5.66E-03	Different	Α	Α	AB	В	2.95E-03	Different	Α	16,936	AB	25,085	AB	26,956	В	39,567
Bottom Dissolved Oxygen	6.82E-04	Different	Α	Α	Α	В	4.51E-06	Different	Α	4.65	Α	4.87	Α	3.99	В	0.65
Water Depth	7.24E-10	Different	Α	AB	В	С	9.00E-10	Different	Α	10.4	AB	14.2	В	18.5	С	29.0

TABLE D-18

Correlations of Among Key Sediment Parameters, Water Column Parameters, and Benthic Invertebrates Metrics (2010 Samples) by Area SWMU 3 Benthic Invertebrate Evaluation

Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

				ı	Pearson (p	arametı	ric)	Spear	man (non-p	aramet	ric)	
Area	Parameter	Parameter	Number of Samples	Correlation Coefficient	Probab	ility	R <sup>2</sup>	Correlation Coefficient	Probab	ility	$R^2$	Direction
Dry Dock	Number of Taxa	Average RQ	3									N/A
Marina	Number of Taxa	Average RQ	11	0.793	0.004	S	0.629	0.749	0.008	S	0.561	Positive
Near Shore	Number of Taxa	Average RQ	19	0.465	0.045	S	0.217	0.042	0.864	NS	0.002	Positive
Offshore	Number of Taxa	Average RQ	27	-0.117	0.561	NS	0.014	0.047	0.816	NS	0.002	
Dry Dock	Number of Taxa	Percent ABM	3									N/A
Marina	Number of Taxa	Percent ABM	11	0.699	0.017	S	0.489	0.793	0.004	S	0.629	Positive
Near Shore	Number of Taxa	Percent ABM	19	0.230	0.343	NS	0.053	0.107	0.663	NS	0.011	
Offshore	Number of Taxa	Percent ABM	25	-0.061	0.772	NS	0.004	0.028	0.895	NS	0.001	
Dry Dock	Number of Taxa	Silt/Clay	3									N/A
Marina	Number of Taxa	Silt/Clay	11	-0.464	0.150	NS	0.215	-0.543	0.084	NS	0.295	
Near Shore	Number of Taxa	Silt/Clay	19	-0.420	0.073	NS	0.177	-0.532	0.019	S	0.283	Negative
Offshore	Number of Taxa	Silt/Clay	27	-0.657	0.0002	S	0.431	-0.589	0.001	S	0.347	Negative
Dry Dock	Number of Taxa	Total Organic Carbon	3									N/A
Marina	Number of Taxa	Total Organic Carbon	11	-0.311	0.351	NS	0.097	-0.406	0.215	NS	0.165	
Near Shore	Number of Taxa	Total Organic Carbon	19	-0.337	0.159	NS	0.113	-0.412	0.080	NS	0.170	
Offshore	Number of Taxa	Total Organic Carbon	27	-0.543	0.003	S	0.295	-0.288	0.145	NS	0.083	Negative
Dry Dock	Number of Taxa	Bottom Dissolved Oxygen	3									N/A
Marina	Number of Taxa	Bottom Dissolved Oxygen	11	0.634	0.036	S	0.402	0.648	0.031	S	0.420	Positive
Near Shore	Number of Taxa	Bottom Dissolved Oxygen	19	0.346	0.147	NS	0.119	0.261	0.280	NS	0.068	
Offshore	Number of Taxa	Bottom Dissolved Oxygen	27	0.280	0.157	NS	0.078	0.393	0.042	S	0.155	Positive
Dry Dock	Number of Taxa	Water Depth	3									N/A
Marina	Number of Taxa	Water Depth	11	-0.583	0.060	NS	0.340	-0.644	0.033	S	0.415	Negative
Near Shore	Number of Taxa	Water Depth	19	-0.441	0.059	NS	0.194	-0.433	0.064	NS	0.188	
Offshore	Number of Taxa	Water Depth	25	-0.147	0.482	NS	0.022	-0.022	0.916	NS	0.000	

TABLE D-18

Correlations of Among Key Sediment Parameters, Water Column Parameters, and Benthic Invertebrates Metrics (2010 Samples) by Area SWMU 3 Benthic Invertebrate Evaluation

Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

					Pearson (p	arametı	ric)	Spear	man (non-p	aramet	tric)	
Area	Parameter	Parameter	Number of Samples	Correlation Coefficient	Probab	ility	R <sup>2</sup>	Correlation Coefficient	Probab	ility	R <sup>2</sup>	Direction
Dry Dock	Total Density	Average RQ	3									N/A
Marina	Total Density	Average RQ	11	0.663	0.026	S	0.439	0.670	0.024	S	0.449	Positive
Near Shore	Total Density	Average RQ	19	0.465	0.045	S	0.216	0.105	0.668	NS	0.011	Positive
Offshore	Total Density	Average RQ	27	-0.046	0.819	NS	0.002	0.100	0.621	NS	0.010	
Dry Dock	Total Density	Percent ABM	3									N/A
Marina	Total Density	Percent ABM	11	0.321	0.336	NS	0.103	0.757	0.007	S	0.573	Positive
Near Shore	Total Density	Percent ABM	19	0.230	0.343	NS	0.053	0.135	0.582	NS	0.018	
Offshore	Total Density	Percent ABM	25	-0.016	0.940	NS	0.000	-0.040	0.851	NS	0.002	
Dry Dock	Total Density	Silt/Clay	3									N/A
Marina	Total Density	Silt/Clay	11	-0.203	0.549	NS	0.041	-0.415	0.205	NS	0.172	
Near Shore	Total Density	Silt/Clay	19	-0.440	0.060	NS	0.193	-0.585	0.008	S	0.343	Negative
Offshore	Total Density	Silt/Clay	27	-0.606	0.001	S	0.367	-0.624	0.001	S	0.390	Negative
Dry Dock	Total Density	Total Organic Carbon	3									N/A
Marina	Total Density	Total Organic Carbon	11	-0.132	0.700	NS	0.017	-0.378	0.252	NS	0.143	
Near Shore	Total Density	Total Organic Carbon	19	-0.400	0.090	NS	0.160	-0.499	0.030	S	0.249	Negative
Offshore	Total Density	Total Organic Carbon	27	-0.488	0.010	S	0.238	-0.278	0.160	NS	0.078	Negative
Dry Dock	Total Density	Bottom Dissolved Oxygen	3									N/A
Marina	Total Density	Bottom Dissolved Oxygen	11	0.486	0.130	NS	0.236	0.674	0.023	S	0.455	Positive
Near Shore	Total Density	Bottom Dissolved Oxygen	19	0.224	0.358	NS	0.050	0.189	0.438	NS	0.036	
Offshore	Total Density	Bottom Dissolved Oxygen	27	0.275	0.164	NS	0.076	0.456	0.017	S	0.208	Positive
Dry Dock	Total Density	Water Depth	3									N/A
Marina	Total Density	Water Depth	11	-0.341	0.305	NS	0.116	-0.661	0.027	S	0.436	Negative
Near Shore	Total Density	Water Depth	19	-0.323	0.177	NS	0.105	-0.451	0.052	NS	0.204	
Offshore	Total Density	Water Depth	25	-0.012	0.954	NS	0.000	-0.011	0.958	NS	0.000	

S - Significant (p  $\leq$  0.05); NS - Not Significant (p > 0.05)

R<sup>2</sup> - represents the percentage of variability explained

TABLE D-19

Benthic Invertebrate Metric Values (2010) for the SWMU 7B Connector Channel and SWMU 3

SWMU 3 Benthic Invertebrate Evaluation

Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

Joint Expeditionary base Little Gree				Exceeds	Exceeds		Exceeds	Exceeds
Sample	Date	Area	Number of Taxa	Channel Minimum?	Channel Mean?	Total Density	Channel Minimum?	Channel Mean?
·		Area	Number of Taxa	Wilnimum ?	wean?	Density	Wiinimum?	wean?
SWMU 7B Connector Channel (Re								
LW07-B5-SD401-00-10C	9/12/2010	Channel	25			1,523		
LW07-B7-SD401-00-10C	9/12/2010	Channel	50			4,583		
LW07-D5-SD401-00-10C	9/11/2010	Channel	9			230		
LW07-F3-SD401-00-10C	9/11/2010	Channel	20			1,034		
LW07-F5-SD401-00-10C	9/12/2010	Channel	27			1,739		
Channel Minimum			9			230		
Channel Mean			26.2			1,822		
Channel Maximum			50			4,583		
SWMU 3								
LW03-SD538-00-10C	09/01/2010	Dry Dock	0	NO	NO	0	NO	NO
LW03-SD539-00-10C	09/01/2010	Dry Dock	0	NO	NO	0	NO	NO
LW03-SD544-00-10C	09/01/2010	Dry Dock	0	NO	NO	0	NO	NO
LW03-SD513-00-10C	09/10/2010	Marina	5	NO	NO	302	YES	NO
LW03-SD514-00-10C	09/10/2010	Marina	5	NO	NO	187	NO	NO
LW03-SD515-00-10C	09/09/2010	Marina	14	YES	NO	374	YES	NO
LW03-SD519-00-10C	09/02/2010	Marina	4	NO	NO	115	NO	NO
LW03-SD520-00-10C	09/10/2010	Marina	20	YES	NO	1,652	YES	NO
LW03-SD521-00-10C	09/12/2010	Marina	18	YES	NO	575	YES	NO
LW03-SD522-00-10C	09/09/2010	Marina	17	YES	NO	761	YES	NO
LW03-SD525-00-10C	09/02/2010	Marina	0	NO	NO	0	NO	NO
LW03-SD526-00-10C	09/10/2010	Marina	2	NO	NO	57	NO	NO
LW03-SD527-00-10C	09/12/2010	Marina	12	YES	NO	1,006	YES	NO
LW03-SD530-00-10C	09/02/2010	Marina	0	NO	NO	0	NO	NO
LW03-SD501-00-10C	09/02/2010	Near Shore	22	YES	NO	862	YES	NO
LW03-SD502-00-10C	09/02/2010	Near Shore	23	YES	NO	761	YES	NO
LW03-SD503-00-10C	09/02/2010	Near Shore	13	YES	NO	330	YES	NO
LW03-SD504-00-10C	08/30/2010	Near Shore	2	NO	NO	43	NO	NO

**TABLE D-19**Benthic Invertebrate Metric Values (2010) for the SWMU 7B Connector Channel and SWMU 3 SWMU 3 Benthic Invertebrate Evaluation *Joint Expeditionary Base Little Creek, Virginia Beach, Virginia* 

				Exceeds	Exceeds		Exceeds	Exceeds
				Channel	Channel	Total	Channel	Channel
Sample	Date	Area	Number of Taxa	Minimum?	Mean?	Density	Minimum?	Mean?
LW03-SD504A-00-10C	08/31/2010	Near Shore	8	NO	NO	187	NO	NO
LW03-SD505-00-10C	08/31/2010	Near Shore	9	YES	NO	273	YES	NO
LW03-SD506-00-10C	09/10/2010	Near Shore	24	YES	NO	1,537	YES	NO
LW03-SD507-00-10C	09/02/2010	Near Shore	18	YES	NO	618	YES	NO
LW03-SD508-00-10C	09/10/2010	Near Shore	13	YES	NO	560	YES	NO
LW03-SD509-00-10C	09/09/2010	Near Shore	18	YES	NO	1,336	YES	NO
LW03-SD516-00-10C	09/09/2010	Near Shore	14	YES	NO	560	YES	NO
LW03-SD523-00-10C	09/09/2010	Near Shore	35	YES	YES	1,983	YES	YES
LW03-SD529-00-10C	09/09/2010	Near Shore	30	YES	YES	2,414	YES	YES
LW03-SD534-00-10C	09/01/2010	Near Shore	5.0	NO	NO	196	NO	NO
LW03-SD535-00-10C	09/01/2010	Near Shore	30	YES	YES	1,580	YES	NO
LW03-SD541-00-10C	09/07/2010	Near Shore	7	NO	NO	129	NO	NO
LW03-SD547-00-10C	09/07/2010	Near Shore	6	NO	NO	287	YES	NO
LW03-SD553-00-10C	09/07/2010	Near Shore	17	YES	NO	287	YES	NO
LW03-SD559-00-10C	09/07/2010	Near Shore	4	NO	NO	57	NO	NO
LW03-SD510-00-10C	08/31/2010	Offshore	10	YES	NO	388	YES	NO
LW03-SD511-00-10C	08/31/2010	Offshore	13	YES	NO	848	YES	NO
LW03-SD512-00-10C	09/02/2010	Offshore	6	NO	NO	129	NO	NO
LW03-SD517-00-10C	08/31/2010	Offshore	2	NO	NO	29	NO	NO
LW03-SD518-00-10C	08/31/2010	Offshore	3	NO	NO	57	NO	NO
LW03-SD528-00-10C	09/09/2010	Offshore	4	NO	NO	101	NO	NO
LW03-SD533-00-10C	09/01/2010	Offshore	4	NO	NO	144	NO	NO
LW03-SD537-00-10C	09/01/2010	Offshore	1	NO	NO	14	NO	NO
LW03-SD540-00-10C	09/01/2010	Offshore	0	NO	NO	0	NO	NO
LW03-SD543-00-10C	09/01/2010	Offshore	0	NO	NO	0	NO	NO
LW03-SD545-00-10C	09/01/2010	Offshore	0	NO	NO	0	NO	NO
LW03-SD546-00-10C	09/01/2010	Offshore	0	NO	NO	0	NO	NO
LW03-SD548-00-10C	09/09/2010	Offshore	1	NO	NO	14	NO	NO
LW03-SD549-00-10C	09/09/2010	Offshore	1	NO	NO	29	NO	NO
LW03-SD550-00-10C	09/08/2010	Offshore	0.67	NO	NO	14.4	NO	NO

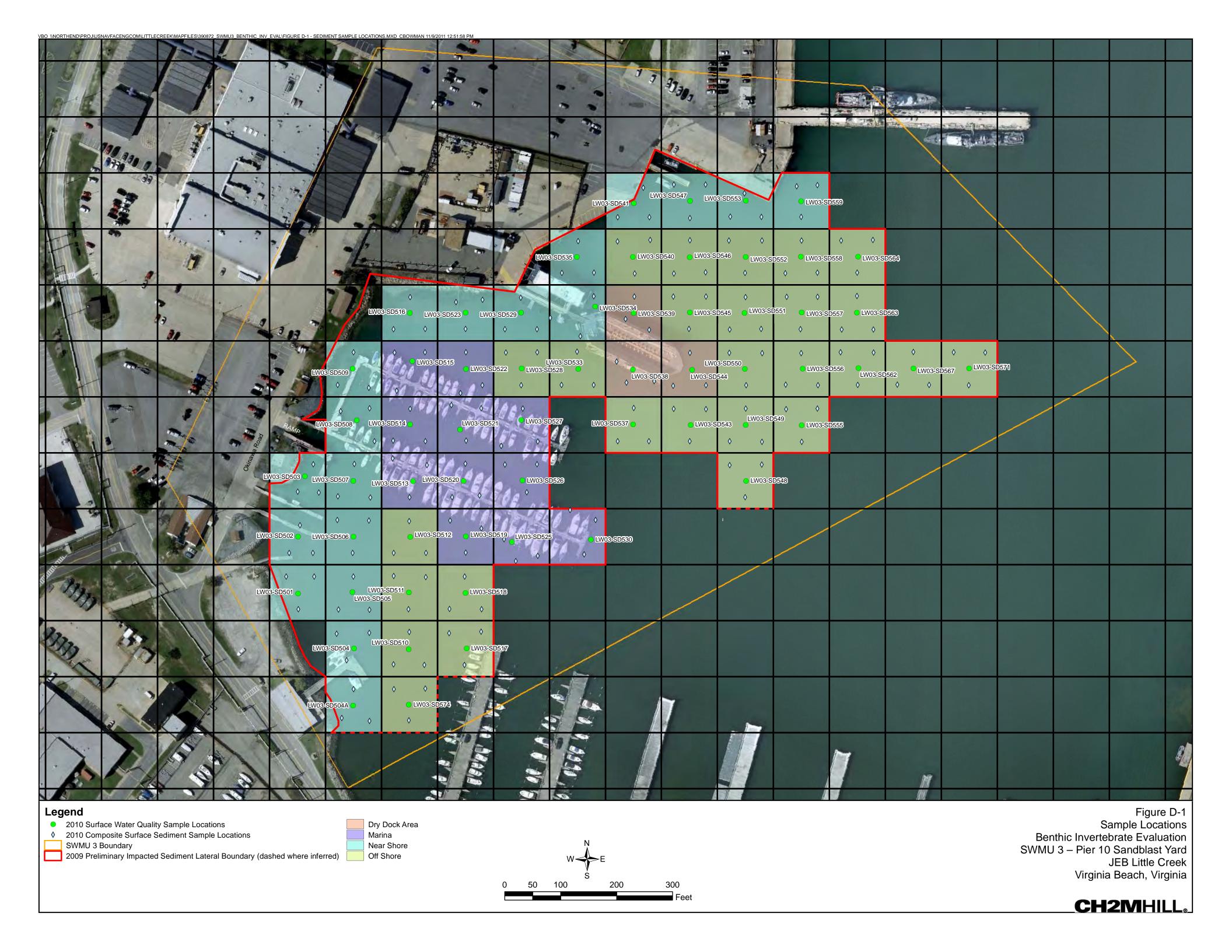
TABLE D-19

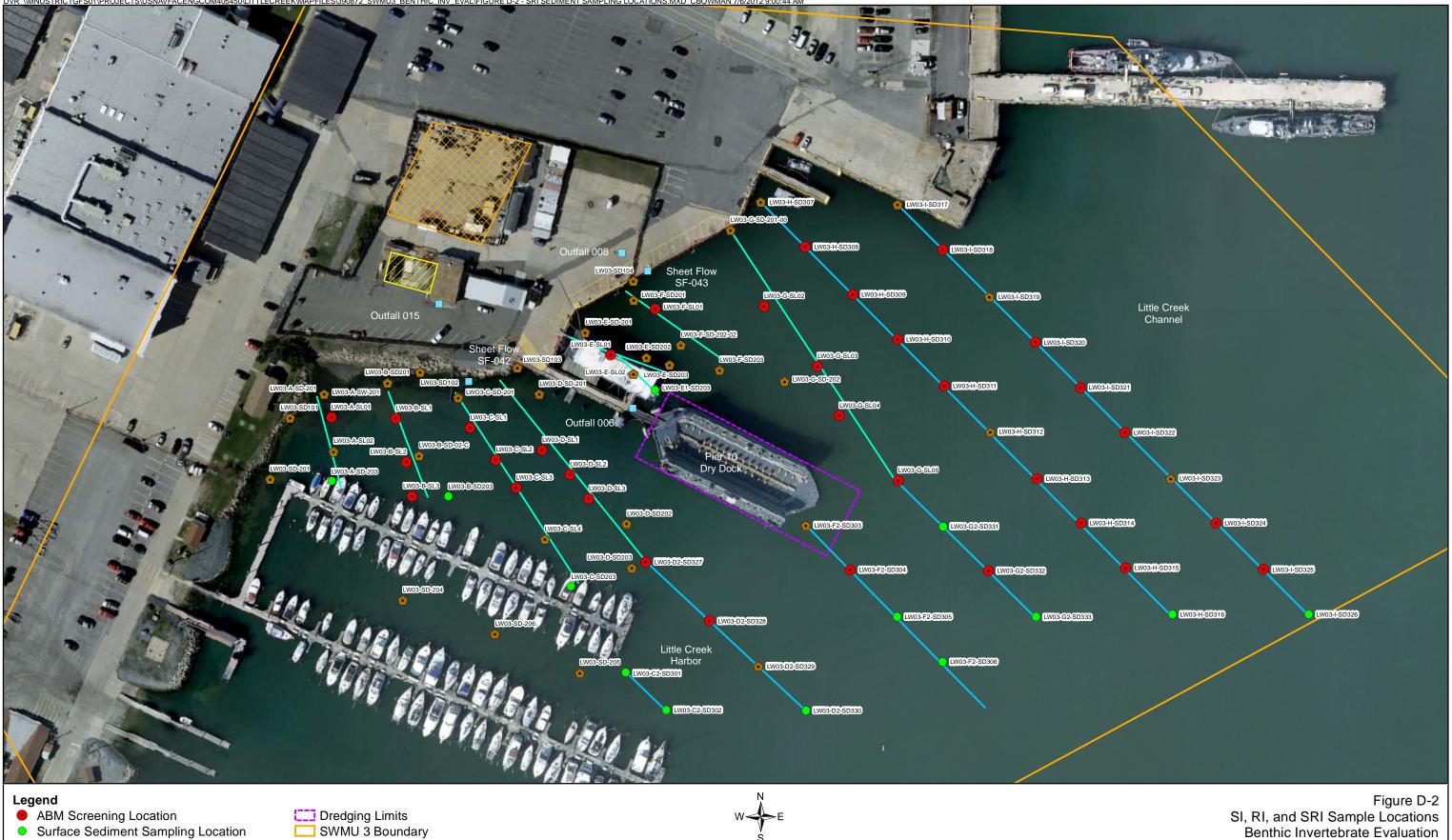
Benthic Invertebrate Metric Values (2010) for the SWMU 7B Connector Channel and SWMU 3

SWMU 3 Benthic Invertebrate Evaluation

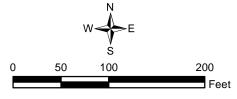
Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

				Exceeds Channel	Exceeds Channel	Total	Exceeds Channel	Exceeds Channel
Sample	Date	Area	Number of Taxa	Minimum?	Mean?	Density	Minimum?	Mean?
LW03-SD551-00-10C	09/08/2010	Offshore	3	NO	NO	43	NO	NO
LW03-SD552-00-10C	09/07/2010	Offshore	0	NO	NO	0	NO	NO
LW03-SD555-00-10C	09/09/2010	Offshore	2	NO	NO	187	NO	NO
LW03-SD556-00-10C	09/08/2010	Offshore	4	NO	NO	101	NO	NO
LW03-SD557-00-10C	09/08/2010	Offshore	3	NO	NO	43	NO	NO
LW03-SD558-00-10C	09/08/2010	Offshore	1.0	NO	NO	14.4	NO	NO
LW03-SD562-00-10C	09/08/2010	Offshore	1	NO	NO	14	NO	NO
LW03-SD563-00-10C	09/08/2010	Offshore	0	NO	NO	0	NO	NO
LW03-SD564-00-10C	09/08/2010	Offshore	2	NO	NO	29	NO	NO
LW03-SD567-00-10C	09/08/2010	Offshore	0	NO	NO	0	NO	NO
LW03-SD571-00-10C	09/08/2010	Offshore	0	NO	NO	0	NO	NO
LW03-SD574-00-10C	08/31/2010	Offshore	0	NO	NO	0	NO	NO



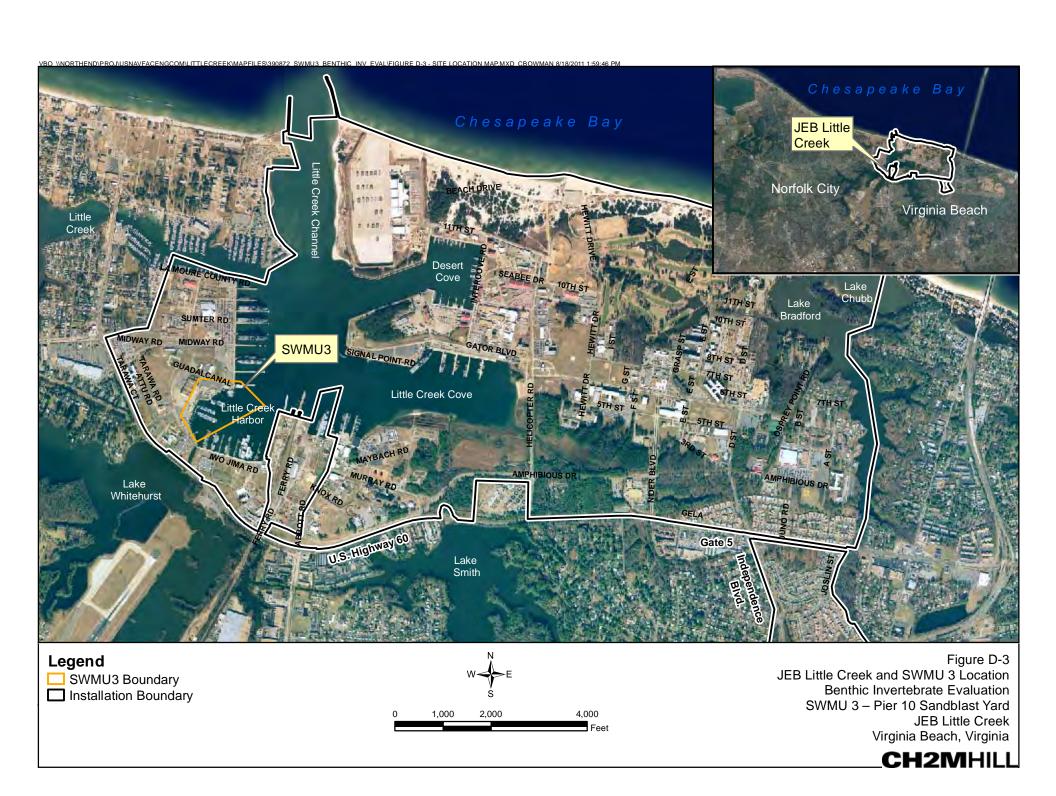


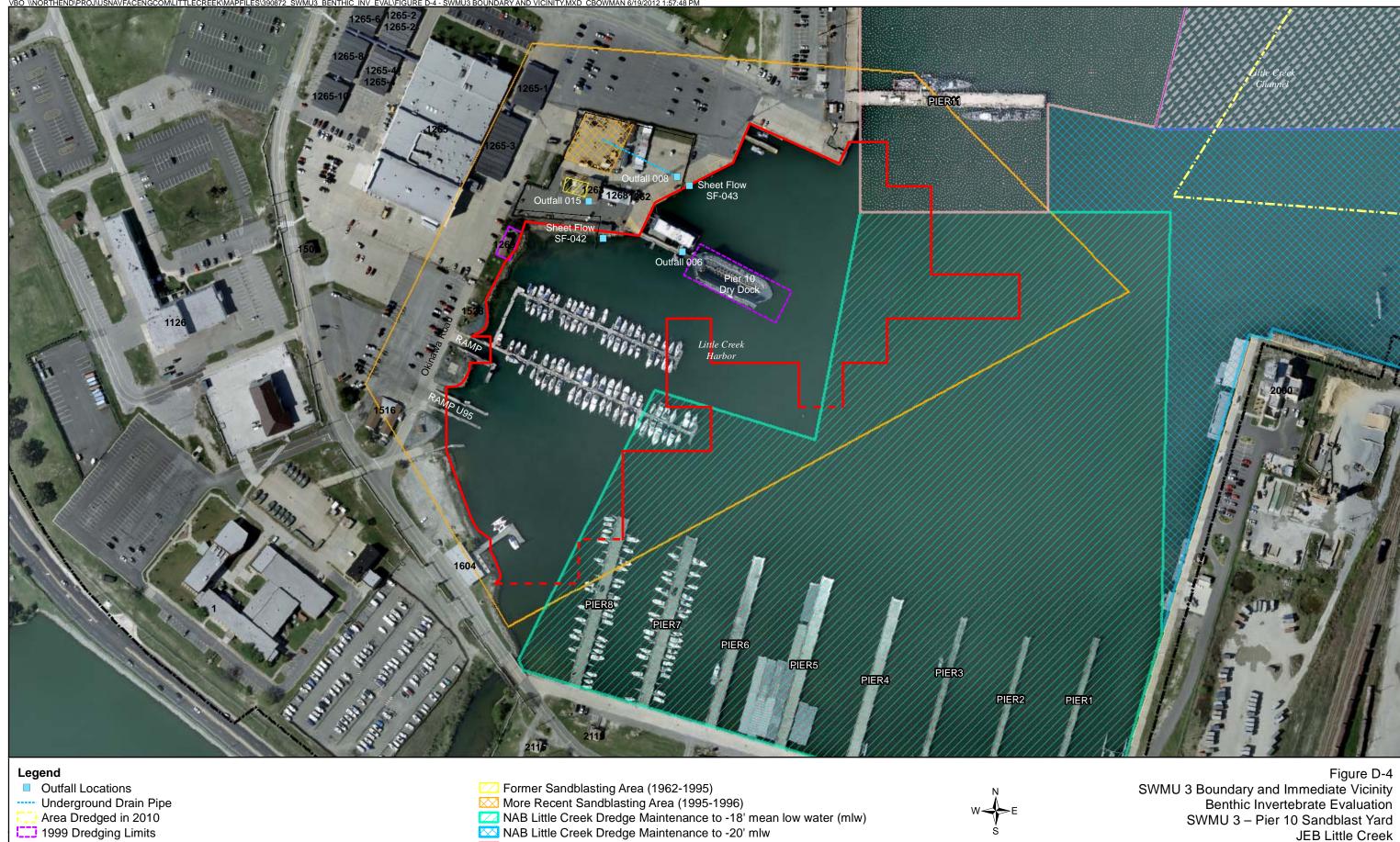
- Surface Sediment Sampling Location
   Surface/Subsurface Sampling Location
- 2002 RI Transects
- 2007 SRI Transects
- Former Sandblasting Area (1962-1995)
- More Recent Sandblasting Area (1995-1996)



SI, RI, and SRI Sample Locations Benthic Invertebrate Evaluation SWMU 3 – Pier 10 Sandblast Yard JEB Little Creek Virginia Beach, Virginia

## **CH2M**HILL





1999 Dredging Limits

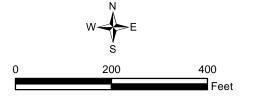
— Fenced Area

2009 Preliminary Impacted Sediment Lateral Boundary (dashed where inferred) USACE Dredge Maintenance to -27' mlw

Picnic Area

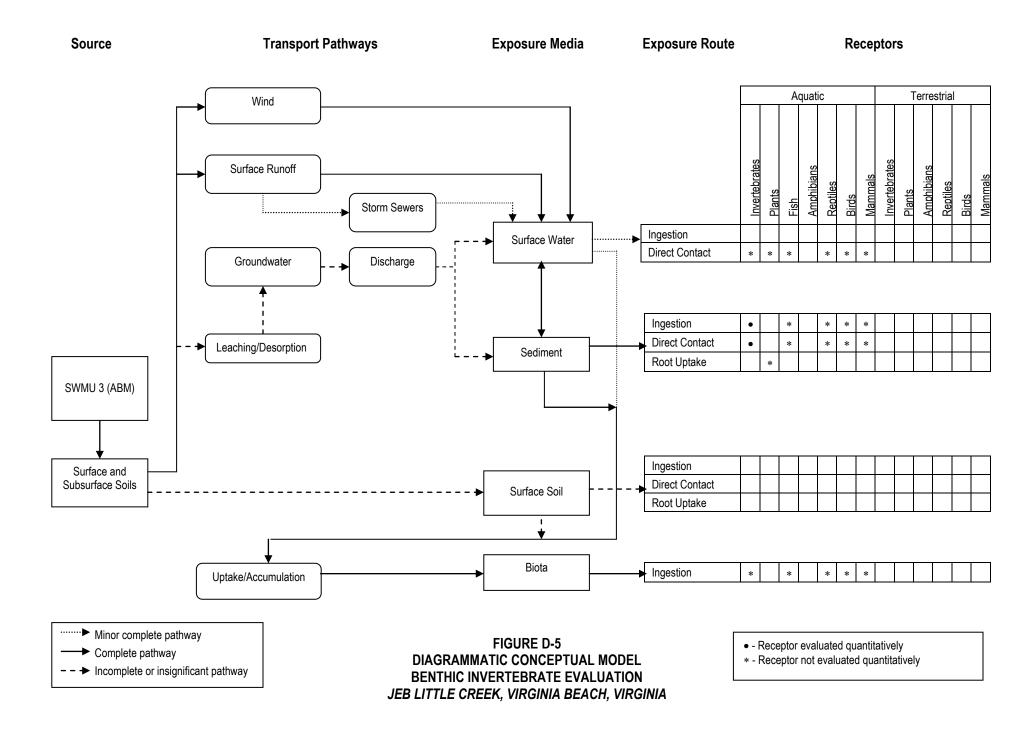
SWMU 3 Investigation Boundary

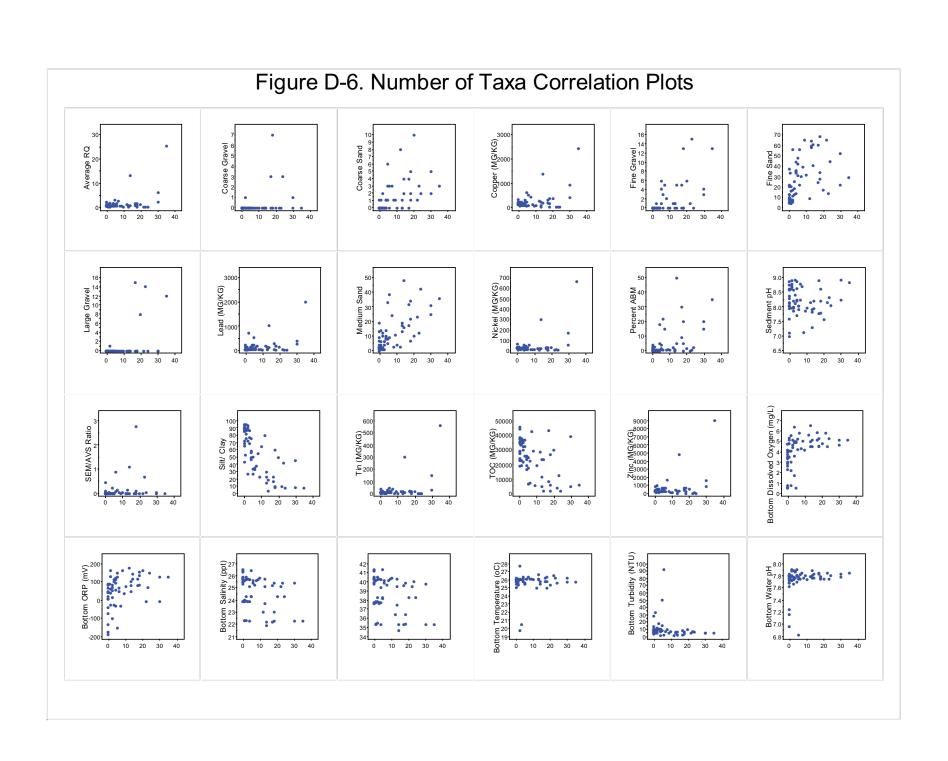
NAB Little Creek Dredge Maintenance to -25' mlw

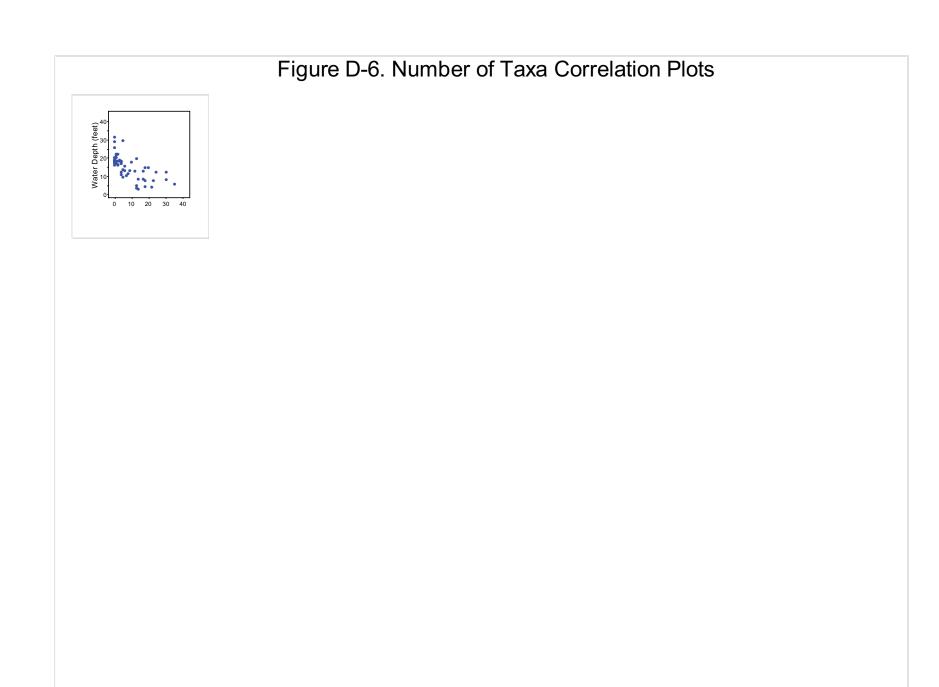


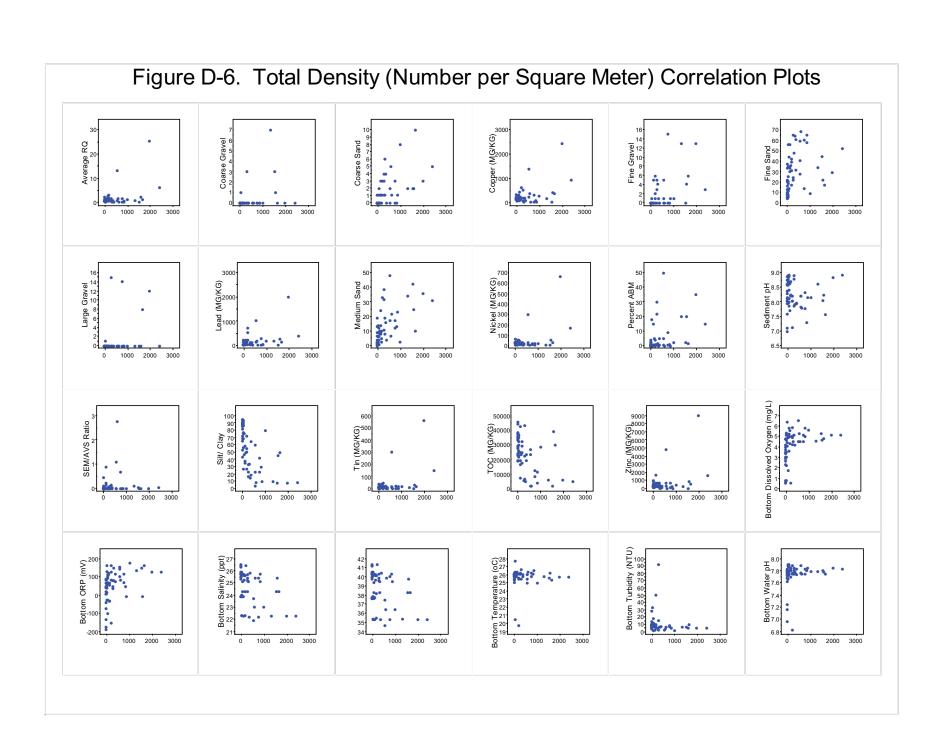
JEB Little Creek Virginia Beach, Virginia

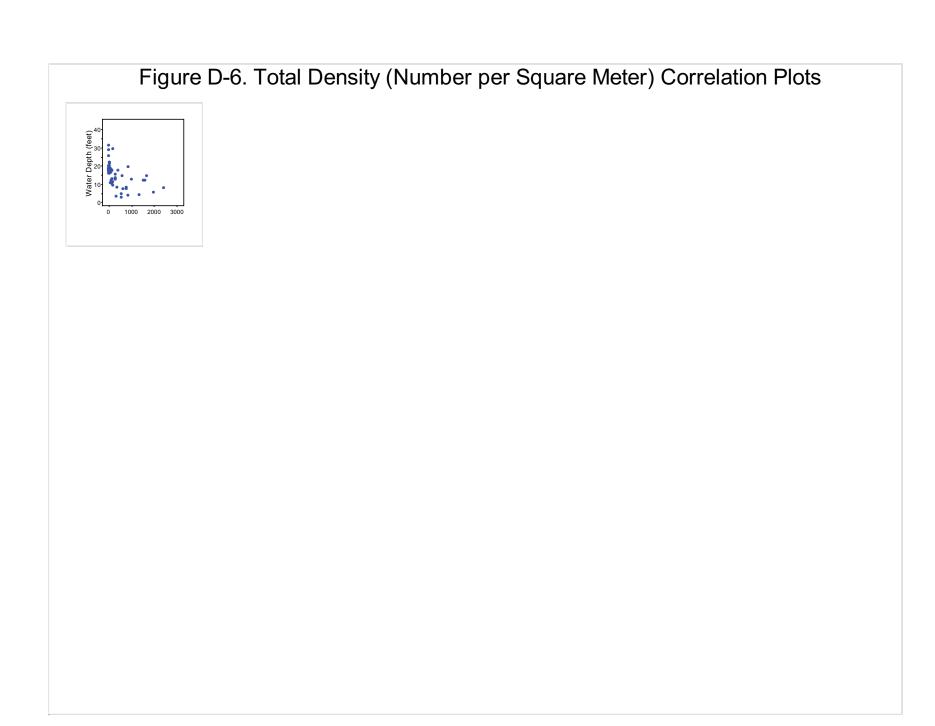
**CH2M**HILL











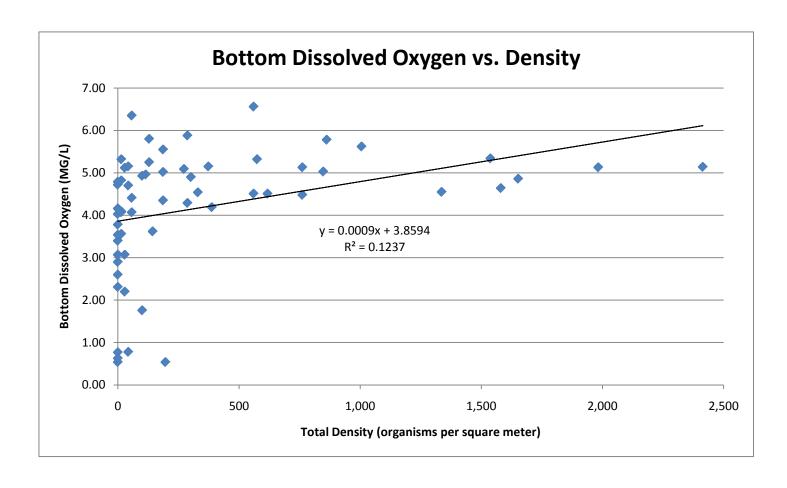


Figure D-7. SWMU 3 - 2010 - Bottom Dissolved Oxygen versus Total Density

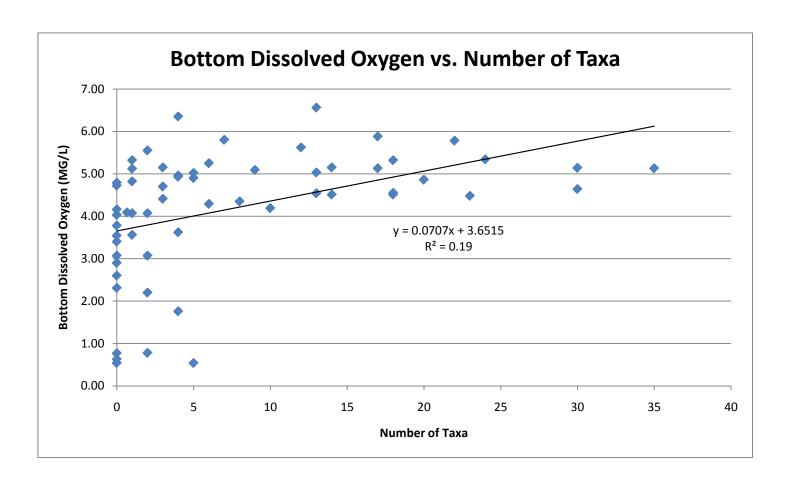


Figure D-8. SWMU 3 - 2010 - Bottom Dissolved Oxygen versus Number of Taxa

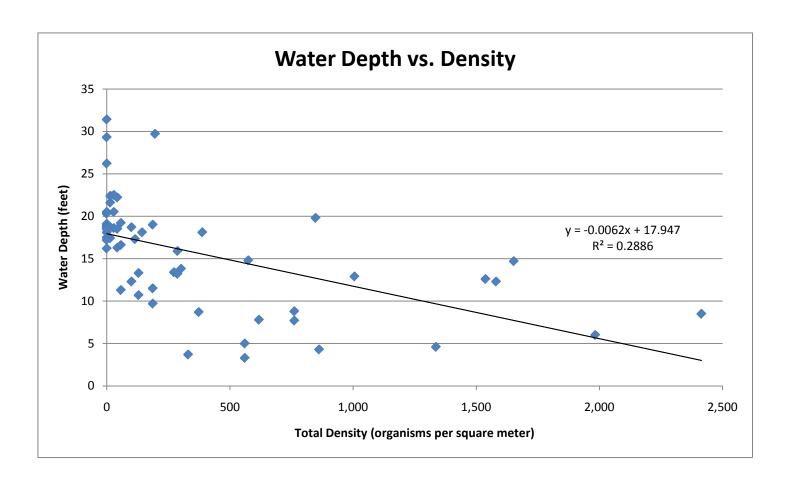


Figure D-9. SWMU 3 - 2010 - Water Depth versus Total Density

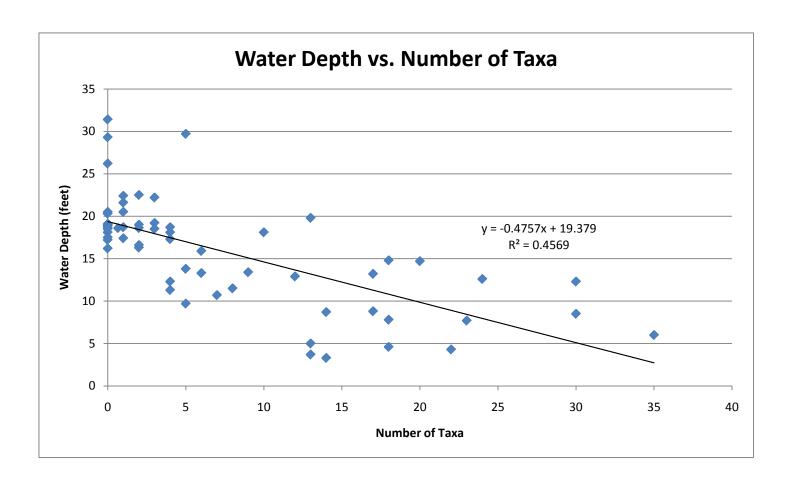


Figure D-10. SWMU 3 - 2010 - Water Depth versus Number of Taxa

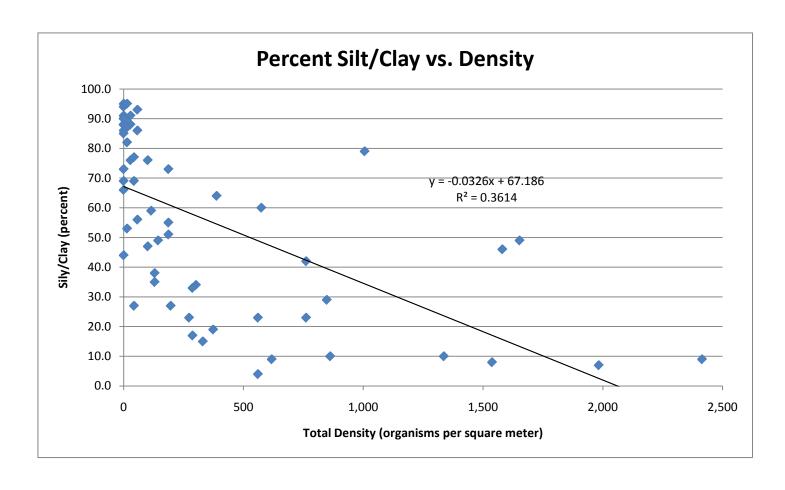


Figure D-11. SWMU 3 - 2010 - Percent Silt/Clay versus Total Density

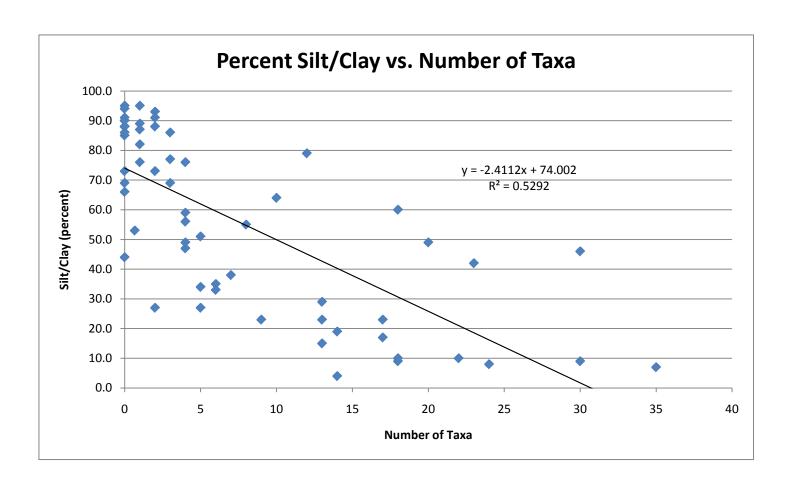


Figure D-12. SWMU 3 - 2010 - Percent Silt/Clay versus Number of Taxa

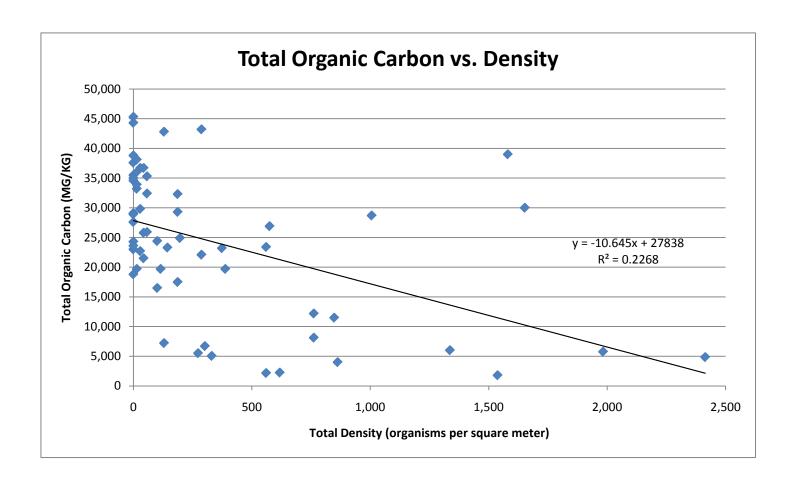


Figure D-13. SWMU 3 - 2010 - Total Organic Carbon versus Total Density

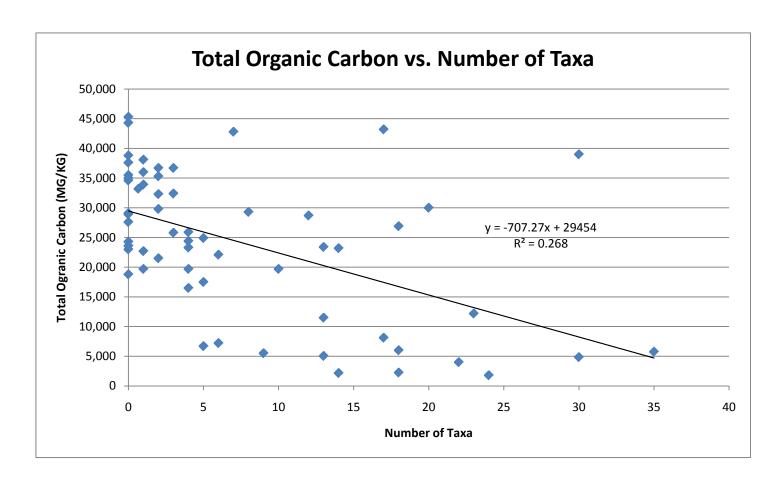


Figure D-14. SWMU 3 - 2010 - Total Organic Carbon versus Number of Taxa

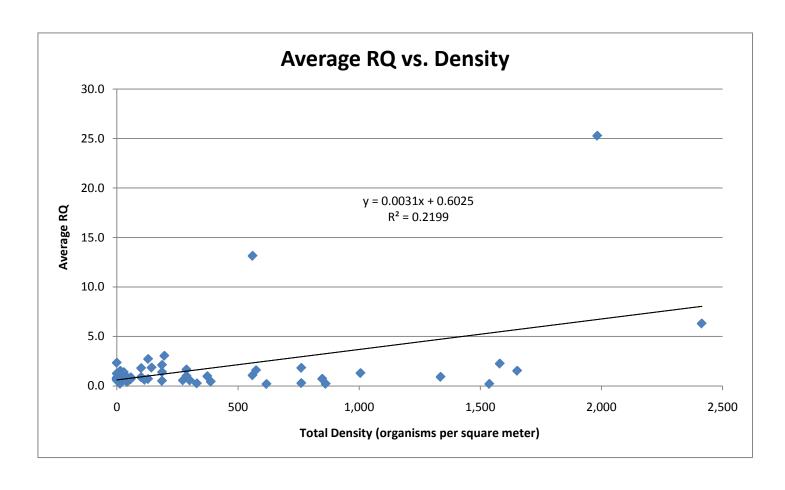


Figure D-15. SWMU 3 - 2010 - Average RQ versus Total Density

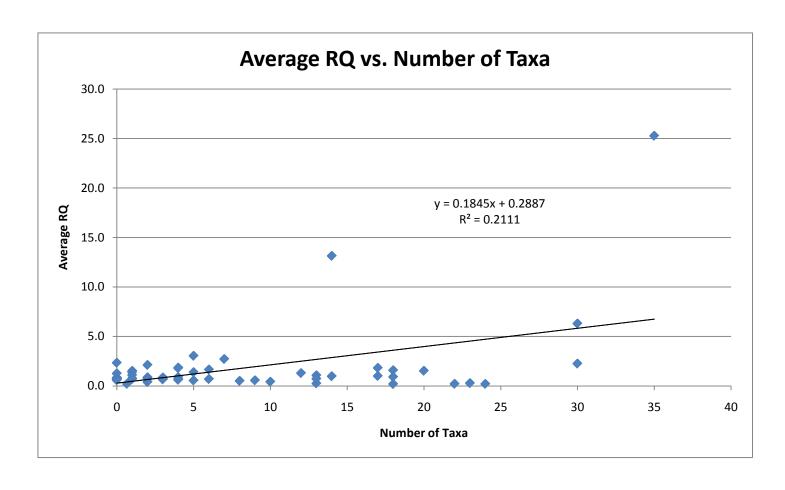


Figure D-16. SWMU 3 - 2010 - Average RQ versus Number of Taxa

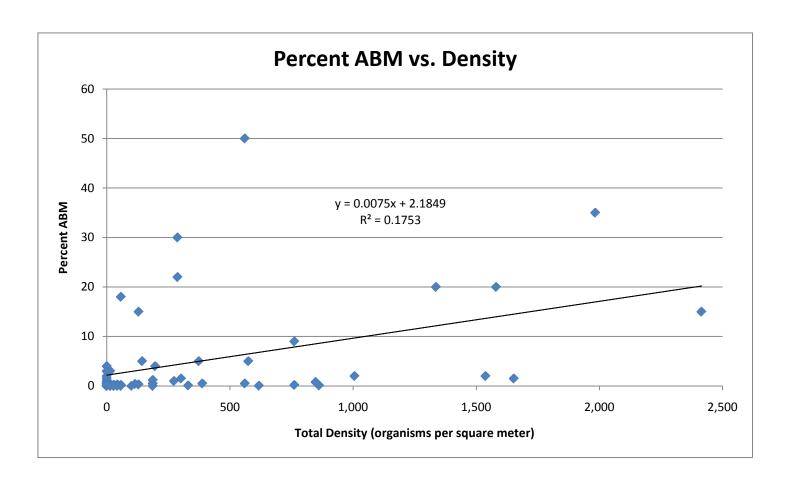


Figure D-17. SWMU 3 - 2010 - Percent ABM versus Total Density

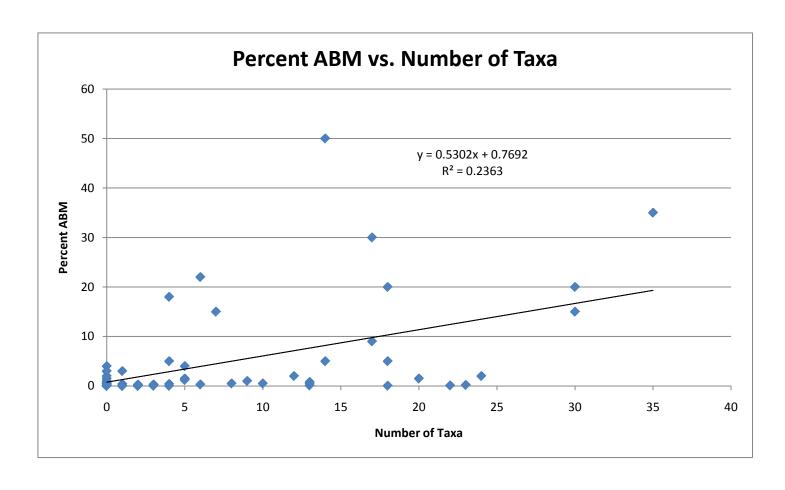


Figure D-18. SWMU 3 - 2010 - Percent ABM versus Number of Taxa

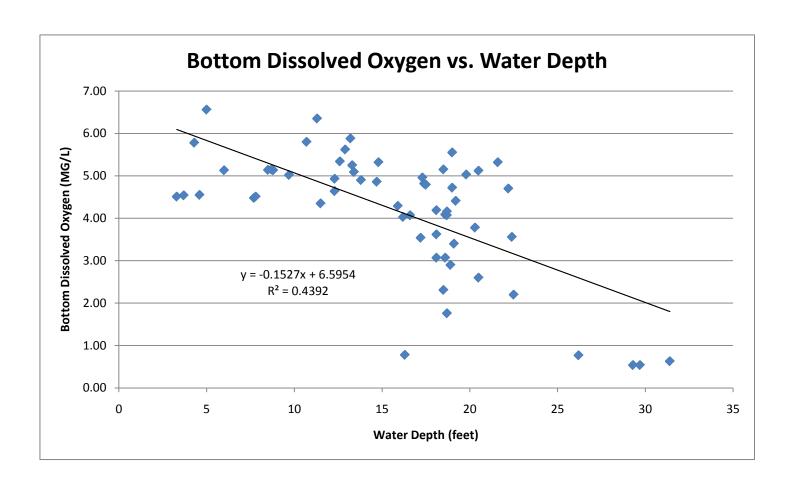


Figure D-19. SWMU 3 - 2010 - Bottom Dissolved Oxygen versus Water Depth

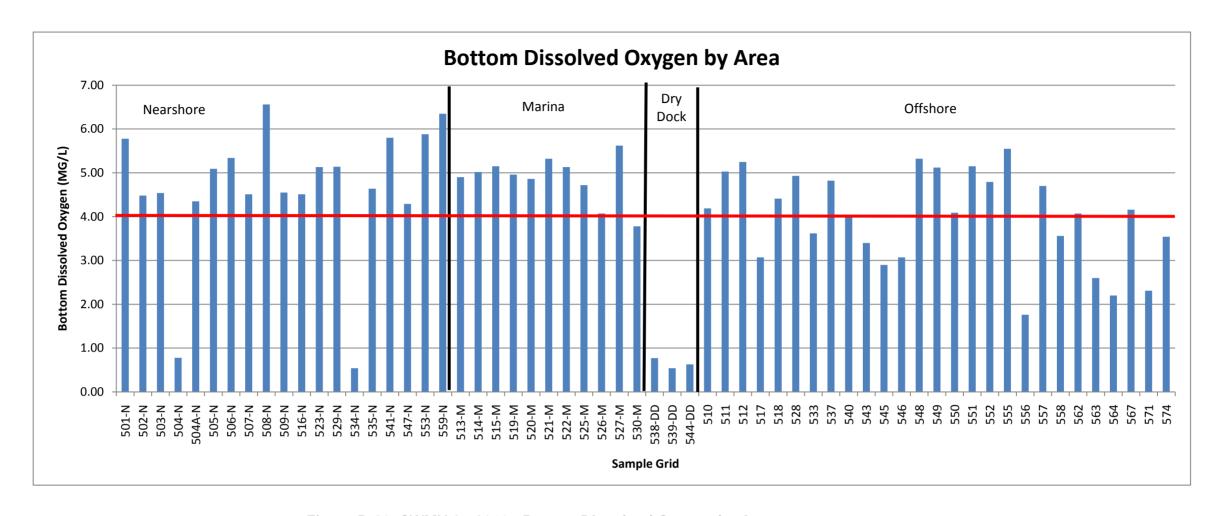


Figure D-20. SWMU 3 - 2010 - Bottom Dissolved Oxygen by Area

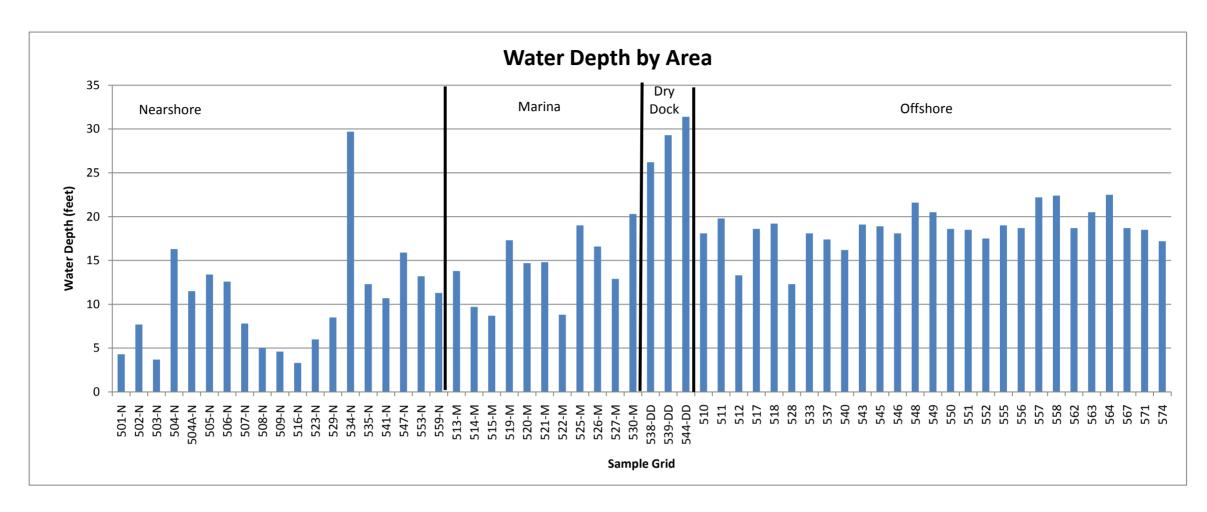


Figure D-21. SWMU 3 - 2010 - Water Depth by Area

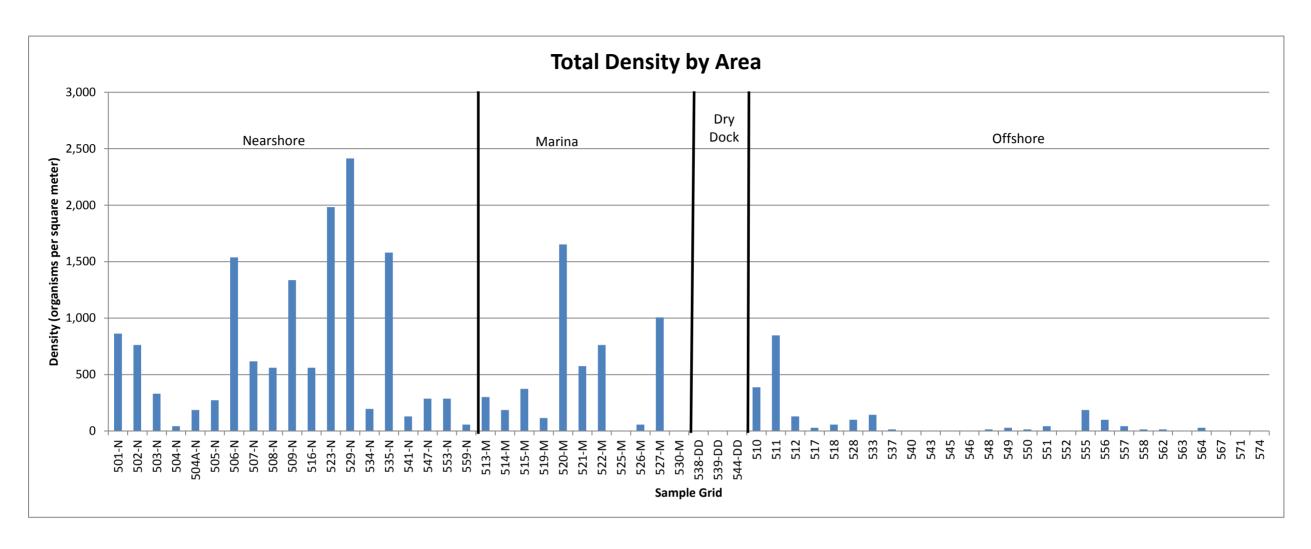


Figure D-22. SWMU 3 - 2010 - Total Density by Area

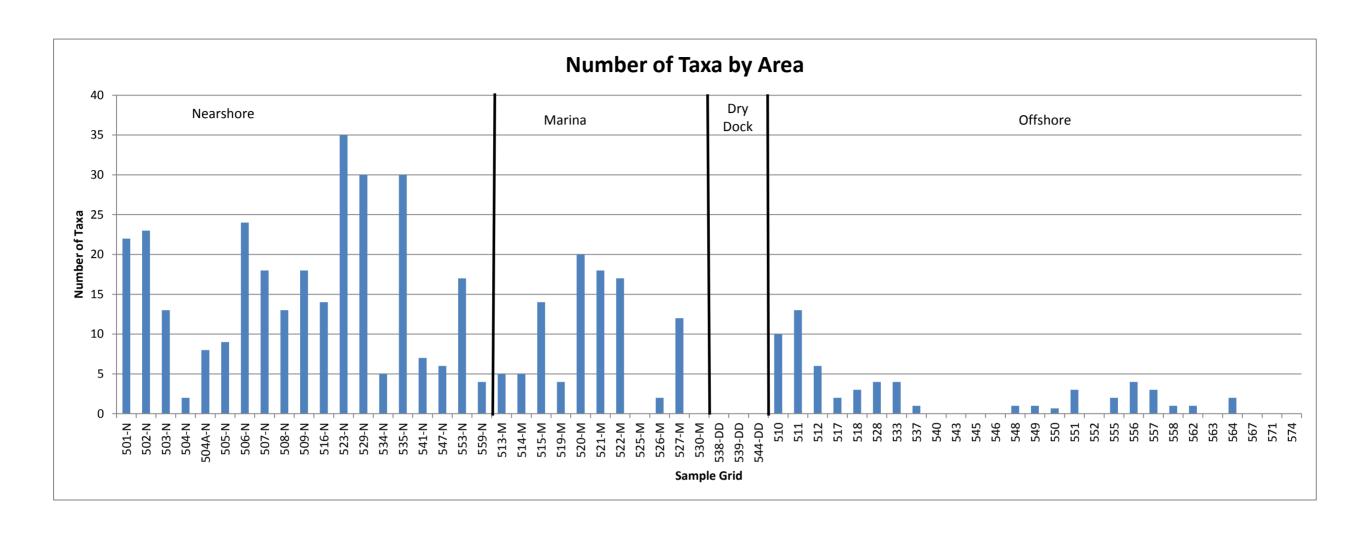


Figure D-23. SWMU 3 - 2010 - Number of Taxa by Area